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MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

SURREBUTTAL TESTIMONY

OF

DAVID MURRAY

UNION ELECTRIC COMPANY
d/b/a AmerenUE

CASE NO. ER-2010-0036

Jefferson City, Missouri
March 2010

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Q. Please state your name.

A. My name is David Murray.

Q. Are you the same David Murray who previously prepared and caused to be filed in Case No. ER-2010-0036 the Rate of Return (ROR) Section of the Staff's Cost of Service Report and Rebuttal Testimony related to rate of return?

A. Yes, I am.

Q. What is the purpose of your Surrebuttal Testimony?

A. The purpose of my Surrebuttal Testimony is to respond to the Rebuttal Testimony of Dr. Roger A. Morin and the Rebuttal Testimony of Ms. Julie M. Cannell. Both of these witnesses represent Union Electric Company d/b/a AmerenUE (AmerenUE) and sponsor testimony related to rate of return in this case. I will first address Dr. Morin's critique of my return on common equity (ROE) recommendation and I will then address Ms. Cannell's Rebuttal Testimony related to the perspectives of equity investors' on electric utility investments.

EXECUTIVE SUMMARY

Q. Please summarize your general reaction to Dr. Morin's Rebuttal Testimony.

A. I am surprised at the lack of depth of Dr. Morin's response to the equity analysts' cost of equity estimates I provided in the ROR Section of the Staff's Cost of

Service Report. It appears that after a review of Dr. Morin's Rebuttal Testimony that Dr. Morin and I have a fundamental disagreement as to the very purpose of "cost of capital" witnesses. I have always prepared ROR testimony with the objective of trying to provide the Commission with my understanding of investors' required return on common equity, i.e. the cost of common equity. Although Dr. Morin represents that his ROE recommendation is based on his estimate of investors' cost of common equity, when provided with cost of equity discount rates used by investment analysts in practice, Dr. Morin seeks to differentiate the cost of equity methodology used in utility rate cases from what is used in practice by investors. Dr. Morin's attempt to dismiss the cost of common equity estimates used by investment analysts is inconsistent with the basic premise of his constant-growth discounted cash flow (DCF) analysis. Specifically, as indicated by affirmation in his Rebuttal Testimony, Dr. Morin believes that equity analysts provide reliable information in the form of earnings per share (EPS) forecasts to be used in his constant-growth DCF cost of common equity estimates (another point on which we disagree).

In concluding that the Commission should disregard the equity analyst information contained in my previously-filed testimony, Dr. Morin devotes only eight (8) lines of Rebuttal Testimony to this topic. I find the lack of engagement on this point to be perplexing. Dr. Morin's Rebuttal Testimony does not "[address] in detail the methodological differences in the [cost of capital] models referenced" as stated in the Rebuttal Testimony of Ms. Julie Cannell.

Dr. Morin did state in his Rebuttal Testimony that "[a] handful of equity reports is a highly questionable source of information in assessing an appropriate ROE for a regulated utility and in gauging the **academic state of the art in the field of finance.**" (Morin

Rebuttal, p. 28, l. 3, emphasis added). However, the notion of academic prosperity in any field revolves around a tradition that embraces vigorous discussion and debate. Although, on this issue, Dr. Morin has done little to advance the academic debate about a reasonable estimate of the cost of common equity for a regulated electric utility such as AmerenUE, I certainly understand the importance and gravity of the Commission's difficult decision of deciding on a fair allowed ROE for purposes of this case and hoped that providing required returns directly from the investment community would cause a worthwhile debate from Dr. Morin, but unfortunately it did not. Consequently, in the remainder of this testimony I will respond to Dr. Morin's "traditional" criticisms of my analysis provided in Staff's Cost of Service Report.

Q. Please summarize your general reaction to Ms. Cannell's Rebuttal Testimony in this case.

A. In my view, Ms. Cannell's testimony is informative, but not complete. I think the Commission should consider a number of investor-related factors that Ms. Cannell discusses in her Rebuttal Testimony just as they should keep the ratepayers' interest in mind, but I also think the Commission should consider the cost of common equity estimates Staff provided from some of the very same sources Ms. Cannell uses to bolster her conclusions as to investors' expected (higher) levels of allowed ROE. As Ms. Cannell is aware from her experience as a portfolio manager, there is a difference between an **expected** return and a **required** return (Cannell Deposition, p. 24, ll. 5-12). I believe management is responsible for attracting investors by achieving expected returns, but ratepayers should only pay rates that are consistent with investors' required return, i.e. the true cost of capital. I will address this in more detail when I discuss the specifics of Ms. Cannell's Rebuttal Testimony.

DR. MORIN'S REBUTTAL TESTIMONY

Q. Dr. Morin claims that the Commission has relied heavily on the constant-growth DCF in the past. Is this true?

A. No. Not in the last several years. The Commission's allowed ROEs have been somewhat above the cost of common equity estimates derived from a traditional constant-growth DCF using traditional inputs. Until recently, traditional constant-growth DCF estimates using equity analysts' 5-year EPS forecasts for the growth rate yielded cost of equity estimates in the low 9 percent range for electric utility companies. It was not until recently that a constant-growth DCF using equity analysts' 5-year EPS estimates (as advocated by Dr. Morin) resulted in cost of equity estimates for electric utilities above 10 percent, and to my knowledge, the Commission's allowed ROEs since 2004 have not been any lower than 10.20 percent until the recent MGE rate case in which the Commission authorized an ROE of 10 percent.

Q. Dr. Morin claims that your recommended ROE is outside the "mainstream" for electric utilities. Do you agree?

A. No. I believe Dr. Morin and I have a different opinion as to how to define "mainstream" in the estimation of the cost of common equity. I consider my recommended ROE, which is based on my estimate of a regulated electric utility's cost of common equity, to be well within the mainstream of what is implied by stock prices. In fact, considering that Dr. Morin and Ms. Cannell use professional equity analyst information to serve various purposes in their testimonies, it seems that they view the analysis of these analysts to be accurate and reliable. In fact, Ms. Cannell expressly confirmed her confidence in these analysts in her deposition (Cannell Deposition, p. 59, l. 21 - p. 60, l. 2). My cost of common equity estimate compared to those in the investment field is well within the "mainstream."

Q. Are you aware that the Commission has summarily excluded some recommended ROEs in the past when they were greater than 100 basis points below the average authorized ROE published by RRA?

A. Yes. Consequently, if the Commission elects to continue this practice, then I recommend that the Commission consider the upper end of my estimated cost of equity, which falls within this zone of reasonableness based on that standard.

Q. Dr. Morin provides information on allowed ROEs for your proxy group on page 8 of his Rebuttal Testimony. In your opinion should Dr. Morin have provided more information to the Commission to allow it to have full context of this information?

A. Yes. Dr. Morin omitted information regarding when these allowed ROEs were authorized. Staff reviewed the source Dr. Morin used and could only find two (2) allowed ROEs authorized within the past two (2) years, 10.70 percent for Cleco and 10.50 percent for IDACORP. See Schedule 1 for a complete copy of the information provided in this source.

Q. Why are these two allowed ROEs higher than your estimated cost of equity in this case?

A. I do not know the details of these two cases, but I do not agree that this is a reflection of the current cost of common equity for electric utility companies in general. While I certainly can understand the possibility of higher estimated cost of common equity estimates in these cases due to fact that the ROR witnesses may have been evaluating capital market data at the time of the recent capital market crisis[1], it is also possible that the ROR witnesses in those cases used methodologies similar to Dr. Morin's to estimate the cost of equity, which I do not believe are reliable.

[1] The Cleco case was decided in October 2009 and the IDACORP case was decided in May 2009.

Q. How do you respond to Dr. Morin's testimony regarding Staff's recommended ROE in the recent Empire District Electric Company rate case, Case No. ER-2008-0093, in which Staff relied on estimated 5-year EPS growth rates for the constant-growth rate in a constant-growth DCF methodology?

A. I would respond the same way I explained this in my Rebuttal Testimony in this case. Although Staff did rely more heavily on analysts' projected 5-year EPS growth rates for its constant-growth DCF analysis beginning in late 2005, these growth rates seemed to be somewhat consistent with sustainable long-term constant growth rates at that time. Staff continued to rely on these projected growth rates as recently as the last rate case for The Empire District Electric Company, Case No. ER-2008-0093, because the historical growth rates were volatile and thus not reliable in providing significant insight on expected future growth. Consequently, even though these projected EPS growth rates were trending higher, Staff continued to rely on such rates in Staff's constant-growth DCF analysis because historical growth rates were not providing significant insight as to a normalized forward expected growth rate due to the unusual historical volatility.

At the time Staff performed its analysis in certain previous cases, it was plausible to argue that these projected growth rates were consistent with investors' expectations, at least in the near future, due to a much more stable economic environment. However, Staff disagrees that current higher equity analysts' projected EPS growth rates used by Dr. Morin are sustainable. While equity analysts' 5-year EPS growth rates seem to have decreased slightly in light of the recession and continued expected slower growth in the economy, (which has caused many electric utility companies to at least postpone

plant investment) these growth rates are still not consistent with the perpetual growth rates investors would expect for the regulated electric utility industry.

Q. Did Company Witness Cannell confirm in her deposition that it would not make sense for a company to be able to grow perpetually at a rate above the expected growth rate of the overall economy?

A. Yes, when asked this question in a recent deposition, Ms. Cannell indicated that "Intuitively it doesn't make sense to me." (Cannell Deposition, p. 76, ll. 1-2). Therefore, Ms. Cannell, the Company's investor advocate, informs the Commission that the use of five-year EPS analysts' growth estimates higher than expected GDP growth for a proxy for long-term growth in a DCF analysis is nonsensical. Staff agrees with Ms. Cannell on that point.

Q. Items ii. through iv. of Dr. Morin's Rebuttal Testimony discuss a variety of matters regarding the growth rates you analyzed when performing your constant-growth DCF analysis. How do you respond?

A. Given the fact that I clearly stated in the ROR Section of the Cost of Service Report in this case that I determined the historical and projected data I reviewed made it difficult to estimate a reliable constant-growth rate for a single-stage DCF cost of equity estimate, I think it is rather pointless to analyze this data to come up with a growth rate that I would hesitate to give much weight in context of a constant-growth DCF estimate. This is exactly what prompted me to decide that a multi-stage DCF analysis would provide a more reliable cost of common equity estimate.

Q. What is your reaction to Dr. Morin's claim that your constant-growth DCF analysis should have used prospective growth rates to estimate the cost of common equity?

A. This proposition is simplistic and does not provide any meaningful insight about the cost of common equity. While there may be periods in which analysts' 5-year EPS projections are consistent with long-term sustainable growth rates, and therefore, appropriate for use in a constant-growth DCF, now is not one of those periods.

Q. Is Dr. Morin's Rebuttal Testimony regarding investors' use of 5-year EPS forecasts for valuation purposes consistent with how investors discount cash flows in practice?

A. No. While Dr. Morin's criticism was directed at the rationale behind my decision to use a multi-stage DCF analysis, his testimony provides a good opportunity to discuss the contradiction of cost of capital estimates provided by certain ROR witnesses compared to how investors determine the value of cash flows in reality. Dr. Morin's constant-growth DCF analysis assumes that investors expect a constant compound growth rate in dividends per share (DPS) of approximately 6 percent per year into infinity. However, as Dr. Morin points out on page 16, line 20 through page 17, line 5 of his Rebuttal Testimony, that because electric utility companies are currently in a multi-year construction cycle, they are in general experiencing negative free cash flow to the equity investor. Consequently, contrary to all of Dr. Morin's comments about the inappropriateness of considering negative growth rates in an investment analysis, in actuality, investors will factor in expected negative cash flows due to near-term investment needs, but then will factor in positive cash flow in later years. However, the expected growth in this expected cash flow will still be commensurate with the fundamentals of the industry, which should factor in expected growth in the demand for electricity (as opposed to general economic growth as measured by GDP).

Q. What growth rates have investors in electric utilities achieved in the past when demand was strong?

A. According to Schedule 1 attached to Staff witness Stephen G. Hill's Rebuttal Testimony in this case, the average DPS, EPS and book value per share (BVPS) growth rate was approximately 3.4 percent over the past 50 years. This amount is roughly 60 percent of the constant-growth rate of approximately 6 percent that Dr. Morin assumes in his constant-growth DCF analysis. Consequently, while Dr. Morin is attempting to bolster his position that equity analysts' are underestimating projected growth, at least in the long-term, because of the current build cycle, in fact, it would appear that a normal industry growth rate after a period of construction would be closer to the growth rates provided by Mr. Hill.

Q. If you had factored in negative growth in the near-term in your multi-stage DCF analysis and then trended the growth rate to more normal industry growth rates, how would this have impacted your estimated cost of equity?

A. It would have reduced it. Considering my multi-stage DCF analysis assumed that the DPS would grow at rate consistent with EPS in the first stage (a non-cash growth rate in this instance), during a period in which utility companies may need to retain capital to reinvest it in the company, then my analysis will imply a higher cost of equity than is actually required by investors.

Q. Dr. Morin maintains that you were inconsistent by using analysts' forecasts in your multi-stage DCF analysis, but not in your constant-growth DCF analysis. Was this inconsistent?

A. No, for a number of reasons. First, Dr. Morin has misinterpreted my analysis as a two-stage DCF analysis. The first sentence of the first paragraph under the heading

"Multiple-Stage DCF" indicates that Staff's analysis assumes "three different stages of growth in dividends..."

Second, Dr. Morin clearly takes my testimony out of context. The full sentence from which Dr. Morin places a portion in his Rebuttal Testimony is as follows: "Therefore, Staff chose to give full weight to the analysts' earning growth estimates for the first five years of its DCF analysis and partial weight to these analyst growth rates in years six through ten." Staff then used its estimate of a sustainable growth rate for the third stage of its multi-stage DCF analysis.

Consequently, this is not inconsistent at all. To the contrary, if I had used analysts' 5-year EPS forecasts in my constant-growth DCF, this would have been inconsistent with my multi-stage DCF analysis, which appropriately reduces 5-year analysts' EPS forecasts to a more sustainable growth rate.

Q. Dr. Morin indicates that you made several errors in your analysis that should cause the Commission to be concerned about the reliability of my estimated cost of common equity. Did you make any errors?

A. Yes.

Q. Do these errors make your estimated cost of equity any less reliable?

A. No. These errors did not affect the primary factors I considered in arriving at my cost of common equity estimate of 9.00 to 9.70 percent.

Q. Do you need to correct anything in Staff's Cost of Service Report or the Appendices attached to the Cost of Service Report to address these issues?

A. Yes. I have attached corrected Schedules 10-2 and 15 to this testimony.

Q. Did Dr. Morin identify an error in your multi-stage DCF analysis?

A. Yes, though as mentioned above, this error has no effect on my recommendation. Specifically, while I did use an initial iteration number of 11 percent for the rest of my internal rate of return (IRR) formulas rather than the 10 percent shown for IDACORP, this number does not affect the outcome of the estimate, it is merely a starting point for the computer to run the algorithm. I could have used an initial figure of 0 percent or 25 percent and the estimated cost of equity would have been the same.

Q. Do any of the errors Dr. Morin found change the fact that your estimated cost of equity is corroborated by equity analysts' cost of equity estimates in estimating a fair value for electric utility stocks?

A. No. While ROR witnesses must compile and analyze data to estimate the cost of common equity, at the end of the day it is important for the analyst to evaluate the reasonableness of these final calculated figures before using them as inputs in models.

Q. On page 17 of his Rebuttal Testimony, Dr. Morin indicates that he disagrees with the second stage of your multi-stage DCF methodology. Does Dr. Morin's testimony address the second stage of your multi-stage DCF analysis?

A. No. The second stage of my multi-stage DCF analysis consists of years 6 through 10, and is the stage in which the growth from the first stage is gradually reduced to the perpetual growth rate of 3.1 percent. Dr. Morin's testimony addresses the third stage of my multi-stage DCF analysis.

Q. Does Dr. Morin understand your logic for the growth rate for your third stage?

A. I don't think so. Dr. Morin seems to think that I used some estimate of GDP growth for my third stage, which is my perpetual growth estimate. Because of reasons I cited in the ROR Section of the Cost of Service Report, I believe the use of

expected GDP growth overstates investors' perpetual growth assumptions when estimating a fair price to pay for electric utility stocks. When asked in Staff Data Request No. 351 to cite to the portion of my testimony in which I stated that the 3.1 percent long-term growth rate was an estimate of the "U.S. economy long-term growth rate," Dr. Morin cites the line in my testimony where the 3.1 percent growth rate is located, but is silent on what that 3.1 percent represents. As I stated, it does not represent the growth rate in the U.S. economy as Dr. Morin incorrectly states in his Rebuttal Testimony.

Q. Did you provide any information from equity analysts that corroborate the reasonableness of your assumed perpetual growth rate of 3.1 percent rate?

A. Yes. In the equity analysts' reports I reviewed, I discovered that these analysts used perpetual growth rates of 3 percent or lower for purposes of estimating a fair value to pay for electric utility stocks.

Q. Dr. Morin indicates that your long-term perpetual growth rate of 3.1 percent is not acceptable because it is not based on earnings/dividend growth as required by the DCF methodology. Are you aware of any such requirements for the DCF?

A. No. In the practical world, analysts and investors must use judgment in estimating the growth or lack thereof in cash flow they may expect from an investment. I am not aware of situations in which investors limit themselves to one specific or even two specific financial indicators to estimate growth for valuation purposes.

Although I do not agree with Dr. Morin that the use of earnings/dividend growth is a *requirement* in the practical world, I will entertain his thought for sake of discussion. Dr. Morin seems to believe that the DCF, or the dividend growth model as more correctly specified in "mainstream" finance, should be based on expected equity analyst estimates of

EPS growth over the next 5 years. Although Dr. Morin uses EPS, which by itself is not consistent with the theory of discounting expected constant dividend growth, Dr. Morin stretches the original theory even further by assuming that 5-year EPS estimates will grow constantly *forever*. While this assumption seems to have snowballed in the regulatory ratemaking world as being theoretically correct, this is not so.

Q. After suggesting that earnings/dividend growth is required by the DCF, what does Dr. Morin suggest as an appropriate growth rate for purposes of the DCF?

A. Long-term GDP growth. This is not a growth rate based strictly on earnings/dividend growth.

Q. What is one of the basic assumptions of the constant-growth DCF?

A. That DPS, EPS and BVPS will grow at the same constant rate over the long-term.

Q. Did Staff witness Hill provide any information in his Rebuttal Testimony that provides a long-term historical proxy for what one may expect in perpetuity for a utility company?

A. Yes. Schedule 1 attached to Mr. Hill's Rebuttal Testimony shows that an average of DPS, BVPS and EPS for the period 1947 through 1999 was 3.4 percent. Interestingly enough, the average growth rates of each indicator were in the range of 3.2 to 3.7 percent, which certainly provides empirical support for this theory. Another interesting factor is the fact that DPS and EPS only had a 0.1 percent difference in their growth rates over this period (3.2 percent for DPS and 3.3 percent for EPS).

Q. If you used the 3.4 percent growth rate from Mr. Hill's Schedule 1 for your perpetual growth rate, what cost of equity range would this imply?

A. Approximately 8.95 percent to 9.95 percent with a mid-point of 9.45 percent.

Q. Do you believe investors would have reason to believe that expected growth from electric utility companies in the long-term would be even lower than the growth rate shown in Mr. Hill's schedule?

A. Yes. Schedule 1, attached to my Rebuttal Testimony, shows a steady decline in electricity usage since 1950 to the point that this usage is expected to be one half to one third less than the expected growth in real GDP. This publicly-available information is certainly something that investors factor into their analysis. In fact, in Rebuttal Testimony Staff provided an excerpt from a Jefferies & Company, Inc. equity research report that showed this very comparison when considering the fundamentals of the electric utility industry.

Q. Are you aware of any other information that would cause investors to be conservative when estimating a long-term perpetual growth rate?

A. Yes. According to a research report published by Bernstein Research by Hugh Wynne, when Mr. Wynne examined a proxy group of electric utility companies over the period 1984-2004, he discovered that the EPS growth for these electric utilities was actually around 1 percent. Because this was during a period of much more robust economic growth than what is expected going forward, it would seem that Staff's perpetual growth rate of slightly above 3 percent is possibly higher than what investors may expect (Schedule 2).

Q. Dr. Morin suggests that you should have used the quarterly version of the DCF rather than assuming annual growth in dividends. How do you respond?

A. As I explained in the ROR Section of Staff's Cost of Service Report, many simplifying assumptions are made for purposes of estimating the cost of common equity and

more importantly, these simplifying assumptions are also made by investors when estimating fair stock prices. Since we are attempting to estimate the discount rate used by investors, it is important to attempt to mirror the type of analysis that they perform because this analysis is what is embedded in stock prices. Staff did not discover any equity analysts' reports that showed projected cash flows discounted on a quarterly basis. Considering the fact that ROR witnesses are attempting to estimate investors' required returns, this type of information should be considered because it provides perspective as to how cash flows are discounted in practice.

In addition, although Staff believes the fact that cash flows are not discounted quarterly in practice, it is also important to understand some of the flaws of the reasoning for Dr. Morin's adjustment. Staff witness Hill provides a detailed example in his surrebuttal testimony illustrating the upward bias such assumption causes in estimating the cost of common equity.

Q. Dr. Morin discusses several concerns he has about your Capital Asset Pricing Model (CAPM) analysis. How do you respond?

A. Because I did not use my CAPM results to estimate the cost of common equity on the basis that I did not believe the lower historical earned return risk premium spread I used combined with a lower risk-free rate currently provided reliable cost of equity estimates, especially at the lower end, I do not believe it is necessary to address the specifics of my CAPM analysis. However, this by no means should be interpreted to render the CAPM as an unreliable cost of equity estimate tool from a methodological perspective, especially if used with more sophisticated forward-looking modeling.

Q. In what situations would a CAPM estimated cost of equity still be a reliable methodology?

A. If econometric models are used to estimate the equity risk premium implied by current capital market conditions. It is Staff's understanding that many equity analysts use the CAPM to estimate the cost of common equity used to discount cash flows. However, in many instances, these equity analysts rely on their firm's economists and/or quantitative departments to determine the appropriate discount rate and model in which that discount rate would be used. Ms. Cannell confirmed during her deposition that as a securities analyst and a portfolio manager at Lord Abbett & Company Inc. she relied on "quantitative individuals" for the models used to determine if they believed stocks were under or over-valued (Cannell Deposition, p. 44, ll. 5-10).

Q. Why do you believe your CAPM results would be less reliable than those used by equity analysts?

A. Because my CAPM results rely on an historical earned return risk premium spreads. My understanding is that investment firms use proprietary models to estimate an appropriate risk premium based on current capital market conditions. These proprietary models may be developed by economists within the firm.

Q. If one were using historical earned return risk differences to project future required equity risk premiums for investment decisions, is it more appropriate to estimate the equity risk premium using arithmetic averages or geometric averages?

A. It depends on the investment horizon. Because Staff has consistently viewed investments in utility stocks as a long-term, multi-period proposition, Staff has consistently

considered geometric averages as being the most appropriate for projecting future risk premiums.

Q. Is this consistent with Staff's understanding of the principles taught in the Chartered Financial Analyst (CFA) Program?

A. Yes.

Q. According to the CFA curriculum is there a situation in which it is appropriate to use arithmetic averages?

A. Yes. According to the CFA curriculum, this would be appropriate for an investment horizon of one year.

Q. Is the appropriateness of the use of geometric or arithmetic averages consistently addressed in all three Levels of the CFA Program?

A. Yes. Staff has seen this issue addressed in several textbooks that are currently used in the CFA Program or have been used in the past for the CFA Program.

Q. Please provide the citation that you are aware of that discusses this issue in Level I of the CFA Program.

A. The textbook, *Quantitative Methods for Investment Analysis*, 2004, by Richard A. DeFusco, CFA; Dennis W. McLeavey, CFA; Jerald E. Pinto, CFA and David E. Runkle, CFA, indicates the following about the use of geometric and arithmetic averages in Chapter 3, Section 10:

> Using Geometric and Arithmetic Means.
>
> With the concept of descriptive statistics in hand, we will see why the geometric mean is appropriate for making investment statements about past performance. We will also explore why the arithmetic mean is appropriate for making investment statements in a forward-looking context…

> In addition to reporting historical performance, financial analysts need to calculate expected equity risk premiums in a forward-looking context. For this purpose, the arithmetic mean is appropriate.

This would lead one to conclude that when estimating expected equity risk premiums one would always use arithmetic means, but in this same section of this chapter, the authors go on to indicate the following:

> Example 3-8 illustrated how the arithmetic mean can distort our assessment of historical performance. In that example, the total performance for the two-year period was unambiguously 0 percent. With a 100 percent return for the first year and –50 percent for the second, however, the arithmetic mean was 25 percent. As we noted previously, the arithmetic mean is always greater than or equal to the geometric mean. If we want to estimate the average return over a one-period horizon, we should use the arithmetic mean because the arithmetic mean is the average of one-period returns. If we want to estimate the average returns over more than one period, however, we should use the geometric mean of returns because the geometric mean captures how the total returns are linked over time.

Although this seems to imply that it is appropriate to use geometric averages when estimating the average returns over more than one period, Staff was not sure if this was in the context of measuring historical returns or using historical return estimates to project future returns. Consequently, Staff revisited some of the other material it had cited in past testimonies to ensure that Staff had not misinterpreted this information.

Q. Please provide Staff's past citations.

A. In the textbook, *Investment Analysis & Portfolio Management*, seventh edition, 2003, by Frank K. Reilly and Keith C. Brown, the authors state the following:

> The geometric mean is appropriate for long-run asset class comparisons, whereas the arithmetic mean is what you would use to estimate the premium for a given year (e.g. the *expected* performance next year).

Another textbook Staff has used to support the use of geometric averages is *Investment Valuation*, 1996, by Dr. Aswath Damodaran. Dr. Damodaran states:

> The geometric mean generally yields lower premium estimates than the arithmetic mean. In the context of valuation, where cash flows over a long time horizon are discounted back to the present, the geometric mean provides a better estimate of the risk premium. Thus, the premium of 5.50% (the geometric mean of the premium over Treasury bonds) is used throughout this book for calculating expected returns.

An additional textbook used by Staff in the past to provide a discussion on about the use of geometric averages as opposed to arithmetic averages was *Analysis of Equity Investments: Valuation*, 2002, by John D. Stowe, Thomas R. Robinson, Jerald E. Pinto and Dennis W. McLeavey. The authors state:

> In taking a historical approach, we face a choice between using arithmetic mean return (typically, the average of one-year rates of return) and using the geometric mean return (the compound rate of growth of the index over the study period). The arithmetic mean more accurately measures average one-period returns; the geometric mean more accurately measures multiperiod growth. The dilemma is that the CAPM (as well as the APT) is a single-period model, suggesting the use of the arithmetic mean; but common stock investment often has a long time horizon, and valuation involves discounting cash flows over many periods, suggesting the use of geometric mean…
>
> …Although the debate is inconclusive, this book uses geometric means, not only for the previously given reasons but also because geometric means produce estimates of the equity risk premium that are more consistent with the predictions of economic theory.

Staff believes that at least based on these sources from the CFA curriculum, it was accurate to conclude that the CFA curriculum advocated the use of geometric averages for long-term investments for purposes of estimating the equity risk premium. It is also interesting to note that two of the authors of the last textbook cited above were also authors

of the *Quantitative Methods for Investment Analysis* material used in Level I of the CFA Program.

Q. Is Staff aware of any material in Level III of the CFA Program that further supports the use of geometric averages to estimate equity risk premiums?

A. Yes. According to Reading 24 of the 2010 Level III CFA curriculum, *Macroanalysis and Microvaluation of the Stock Market*, by Frank K. Reilly, CFA and Keith C. Brown, CFA, geometric means and arithmetic means should be used in the following situations:

> The geometric mean is appropriate for long-run asset class comparisons, whereas the arithmetic mean is what you would use to estimate the premium for a given year (e.g., the expected performance next year). Because our application is to the long-term DDM model, the geometric mean value would probably be more appropriate, which implies using the 7.6 percent risk premium value [based on the period 1926-2004 and the difference between stocks and Treasury bills explains the higher figure].

Staff believes this provides further support for the use of geometric averages, but because Staff was still not sure if the material in Level I was inconsistent with the other CFA curriculum, Staff (David Murray) contacted the instructor of a class Staff is currently taking for Level III of the CFA Program. The instructor replied that he did not believe there was a discrepancy in the curriculum (see email attached as Schedule 3).

Regardless of the information I cited to support the interpretation that using geometric means for estimating the cost of common equity for long-term investment is appropriate, Staff expects continued academic debate on this topic and will monitor any new developments.

Q. Dr. Morin indicates that the data you cited from the Missouri State Employees' Retirement System (MOSERs) is irrelevant to estimating the cost of common equity for a utility. In which data is Dr. Morin referring?

A. I assume Dr. Morin is referring to the MOSERs capital market expectations data I cited in the Staff's Cost of Service Report, although Dr. Morin seems to be confusing this as actuarial data. This is an incorrect interpretation. This data is based on the capital market expectations MOSERs is using for asset allocation decisions.

As an aside, it seems to me to be glaringly inconsistent for AmerenUE to have Dr. Morin sponsor testimony that dismisses institutional investor expected returns (i.e. MOSERs) as being irrelevant in testing the reasonableness of a cost of common equity estimate, while at the same time hiring Ms. Cannell to sponsor testimony to provide the institutional investor perspective.

Q. What did MOSERs 8.5 percent expected return on large domestic stocks represent?

A. This is MOSERs expectations of returns investors would expect to receive for large company stocks over the next ten (10) years. This is not an actuarial discount rate.

Q. Why is this relevant?

A. Because the costs of equity estimates provided by Dr. Morin exceed MOSERs' return expectations for stocks that are consistent with the average risk of the market (a beta of 1.0). Considering that the regulated electric utility companies' betas are around 0.7, this would imply that expected returns for electric utilities will be 30 percent of what is expected of the broader market, or close to 6 percent.

Q. Are you implying that this should be used to set the allowed ROE?

A. No, but I am trying to provide information to provide a reality check as to a reasonable estimate of the cost of common equity.

Q. On page 29 and 30 of his Rebuttal Testimony, Dr. Morin implies that your recommendation will run contrary to that which credit rating agencies may expect from an outcome of this rate case, thereby weakening UE's [Ameren's] credit quality, stock price and earnings power. Have you reviewed any information that would cause you to believe that at least Staff's overall revenue requirement recommendation is consistent with equity investors' expectations?

A. Yes. A December 21, 2009 Barclay's Capital (Barclay's) equity research report on Ameren, by Gregg Orrill and Daniel Ford indicated the following:

> Staff's testimony came in ahead of Missouri Industrial Energy Customers' recommendation. Although Staff usually provides the downside scenario, it was not the case this time. We believe our view is close to Staff's, about $0.32/share below the company and up to $0.18/share above Industrials... (p. 1)

> While the industrials headline ROE is 10% at the midpoint, we believe the revenue requirement is unsatisfactory to achieve that level. This is why we characterize the Industrials' recommendation as below Staff's....(p. 2)

Therefore, at least as far as Barclay's is concerned, if the Commission adopted Staff's recommended rate increase, which includes its 9.35 percent recommended ROE, this would not "weaken" Ameren's stock price.

Q. Should the Commission decide a rate case based on equity analysts' comments about expected rate case outcomes?

A. No. I am just providing this specific commentary to refute Dr. Morin's speculation about the impact of adopting Staff's recommendation in this case.

MS. CANNELL'S REBUTTAL TESTIMONY

Q. Does Ms. Cannell's resume qualify her to provide the investors' perspective regarding investments in regulated utility companies?

A. Yes. Ms. Cannell has experience as a portfolio manager and a securities analyst at Lord Abbett & Company.

Q. Does Ms. Cannell believe she is qualified to estimate the cost of equity?

A. No. During her recent deposition Ms. Cannell admits that she did not estimate the cost of capital or construct models during her tenure with Lord Abbett, but to the contrary that she relied on others in her firm to do so because it was not her responsibility to construct those models. (Cannell Deposition, p. 45, l. 17 through p. 46, l. 3; p. 48, ll. 2-7).

Q. Ms. Cannell indicates that investors now require a higher return when investing in the electric utility industry because of its current "hybrid deregulated structure". Should Missouri ratepayers pay higher rates because of this industry change?

A. No. Missouri did not deregulate its electric utility markets. Consequently, any increased return required for the increased risk associated with this structure should not be passed onto Missouri ratepayers. Utilities in Missouri are still allowed to build their cost of service into rates, which provides protection from economic fluctuations.

Q. On page 9 of her Rebuttal Testimony, Ms. Cannell indicates that investors have traditionally viewed electric utility stocks as "bond substitutes," but later indicates that she believes that this is not so much the case currently. Do you agree?

A. I would say it depends on whether the utility company has ventured into non-regulated operations. As I indicated in the previous answer, AmerenUE is still a pure-play regulated integrated electric utility. If AmerenUE were a stand-alone publicly-traded company, then I believe investors would still view the stock as a "bond substitute." If one

accepts this premise, then the required return on a pure-play regulated electric utility should not be much higher than the alternate investment, i.e. bonds. This can be viewed as the investor's opportunity cost of investment.

Mr. Lee M. Nickloy, AmerenUE Assistant Treasurer, previously indicated during the interim rate proceeding that UE's bonds are trading better than BBB-rated bonds (Interim Rate Case Transcript – p. 474, ll. 18-23). In response to Staff Data Request No. 0298.1, Mr. Nickloy provided over-the-counter UE bond yield information that shows that some debt investors have been willing to purchase UE's debt at a price that yields as low as 6.0 percent on the 30-year debt UE issued in March of 2009 at a coupon rate of 8.45 percent. This provides insight as to the reasonableness of a cost of equity estimate of around 9 percent based on the "rule of thumb" principle that I cited in the ROR Section of Staff's Cost of Service Report, which is that a company's cost of equity is around 3 to 4 percent higher than its cost of debt. Because UE is still a pure-play regulated electric utility, investors would most likely still view it as a "bond substitute" if it were a stand-alone publicly traded company. Consequently, it would be hard to fathom that the "rule of thumb" risk premium would be any higher than the low end for an investment that is already viewed as a bond-substitute. This rule would imply UE's cost of equity is approximately 9 percent.

Q. Does the fact that an investor was willing to pay a price much higher than the par value of these bonds also provide insight on how markets have changed since the height of the credit crisis?

A. Yes. Although it is unfortunate that AmerenUE had to pay a coupon of 8.45 percent on the bonds it issued March 2009 as this high cost of debt will now be paid by ratepayers through the embedded cost of debt included in the rate of return, it is also very

insightful to realize that the required return for some investors in these bonds decreased by approximately 245 basis points since March 2009. This also provides support for Staff's discussion in rebuttal testimony regarding Goldman Sach's cost of equity estimates being more similar to what they estimated in March 2008 (8.9 percent) rather than what they estimated in March 2009 (11.3 percent).

Q. On page 10 of her Rebuttal Testimony, Ms. Cannell cites from a Barclays' report which discussed possible risk premiums in the range of 11 percent to 13.5 percent range. Is this consistent with the risk premiums being used by equity analysts in the equity research reports you reviewed?

A. No. I discovered market equity risk premiums of approximately 4 to 5 percent. These risk premiums had not been adjusted for the lower risk associated with utility investments. If a beta of 0.70 were applied to a 5 percent equity risk premium, then the risk premium applicable to electric utilities would have been approximately 3.5 percent. It should be noted that during the recent credit crisis some of these analysts increased their risk premiums, which were still no higher than 7 percent, or 4.90 percent after applying a beta of 0.70 for electric utilities.

Q. Why do you think Barclays may be projecting such high *possible* risk premiums?

A. Because they compared the implied risk premiums of the late 1970s and early 1980s (the last general building cycle for electric utility companies) to the current period, which is also anticipated to entail significant construction.

Q. What is one of the main differences between this period and that period?

A. The interest rate environment is significantly different. During the late 1970s and early 1980s the United States experienced U.S. Treasury Bond rates that exceeded 14 percent. Currently U.S. Treasury Bonds are about one third of that rate. Quite simply, the aggregate cost of capital was very high during the late 1970s and early 1980s and such is not the case now.

Q. Do you know if Barclays Capital is using these equity risk premiums in its own valuation of stocks?

A. No.

Q. Did Ms. Cannell review other equity analysts' research reports to supplement her own knowledge of the electric utility industry?

A. Yes.

Q. Did Ms. Cannell indicate that investors rely on these reports to evaluate utility stocks?

A. Yes. (Cannell Deposition, p. 57, ll. 20-24)

Q. Did Ms. Cannell indicate that this information is generally available to investors?

A. Yes. Ms. Cannell indicated that "sell side" equity analysts provide their research to "buy side" investors with the intention of attracting their business. (Cannell Deposition, p. 58, l. 4 through p. 59, l. 3).

Q. Did Ms. Cannell indicate that there is a free-flowing exchange of information between the "buy" and "sell" sides of investing?

A. Yes. (Cannell Deposition, p. 59, ll. 9 through 12).

Q. Did Ms. Cannell believe that these equity analysts provided sound analysis?

A. Yes. (Cannell Deposition, p. 59, l. 25 through p. 60, l. 2).

Q. Why is knowledge about investors' use of equity research reports important to the determination of an ROE in this case?

A. Because to the extent that investors use these reports and rely on these analysts for investment decisions, this means that the cost of equity embedded in utility stock prices should be consistent with the costs of equity used by these analysts. At the very least, it provides the Commission with outside verification that Staff is not the "outlier" as Dr. Morin suggests.

Q. How did Ms. Cannell come into possession of the equity analyst reports she provided with her workpapers as public documents in this case?

A. She received some of them on her own and Ameren provided her with others. (Cannell Deposition, p. 61, ll. 9-12).

Q. When was Ms. Cannell contacted to sponsor testimony in this case?

A. Sometime in January 2010.

Q. When did Staff request copies of equity research reports published on Ameren?

A. October 2, 2009 in Staff Data Request No. 200.

Q. What reason did AmerenUE provide for not being able to provide copies of these reports?

A. They indicated in response Staff Data Request No. 200 that their contract with Thomson did not allow them to provide copies to outside parties.

Q. Are you sure why AmerenUE would produce these reports for Ms. Cannell, but not for Staff?

A. No, but to the extent Ms. Cannell provided these reports as workpapers, it does not appear that she had a concern about copyright issues. In fact, she confirmed that this wasn't a concern during her career as an equity analyst and a portfolio manager (Cannell Deposition, p. 62, ll. 8-17).

Q. How does Ms. Cannell's use of equity reports counter Dr. Morin's claim that a handful of "selected" equity research reports that provide cost of equity estimates should not be considered informative for purposes of estimating the cost of equity in a utility regulatory rate making setting?

A. It contradicts Dr. Morin's position. It appears that one witness considers these reports informative and that the other does not. Granted, Ms. Cannell reviewed the reports for regulatory mechanisms that investors consider favorable, whereas I reviewed them to provide insight on the matter at hand, which is estimating the cost of equity.

Q. Did you select the equity research reports you reviewed?

A. No. AmerenUE allowed me to review equity research reports published since January 1, 2008. I reviewed the research reports that AmerenUE allowed me to inspect at the Company's headquarters in St. Louis.

Q. On page 27 of her Rebuttal Testimony, Ms. Cannell describes equity investors' current views of Ameren. What is your understanding of why investors currently believe Ameren's equity value should be below that of its book value to the extent that it is?

A. This is due to Ameren's merchant generation operations. These operations no longer have the protection as regulated assets. In fact, at times Goldman Sachs has assigned negative equity values to these operations even though according to Goldman Sachs the merchant generation operations carry over $1.5 billion in debt.

Q. On page 30 of Ms. Cannell's Rebuttal Testimony, she cites from a Barclay's report that discusses UE's current rate filing in Missouri. It appears that it is the intent in this citation to bolster her position that investors are paying attention to this rate case. Did she provide Barclays views about how they viewed the expected outcome of this rate case?

A. No. On the other hand I did provide this information earlier in this testimony and this information indicates that Staff's recommended rate increase is consistent with their expectations. However, MIEC was below their expectations and UE was above their expectations.

Q. On page 33 of her Rebuttal Testimony, Ms. Cannell explains why she believes that the equity discount rates you provided from research reports should not be considered in context of a utility rate case. How do you respond?

A. Ms. Cannell explains that equity analysts use these discount rates to determine "...how stocks are valued *relative to one another*—that is, whether a specific stock is undervalued or overvalued in respect to other investment opportunities." This does not make these costs of equity irrelevant. In fact, to the contrary, I believe this makes the discount rates more relevant because these discount rates indicate what these equity analysts consider to be an average required return on equity consistent with the risks of electric utilities. Considering that these electric utilities often contain non-regulated operations, one would expect that the regulated operations would justify something below this average.

SUMMARY AND CONCLUSIONS

Q. Please summarize the conclusions of your Surrebuttal Testimony.

A. Dr. Morin's and Ms. Cannell's rebuttal testimonies do not help advance the debate on the cost of common equity for an electric utility company. Ms. Cannell freely

admitted during her deposition that she does not have expertise in estimating the cost of common equity. Dr. Morin does not question the reasonableness of his estimated cost of common equity using equity analysts' EPS forecasts in the constant-growth DCF even when provided with lower cost of equity estimates used by these professional equity analysts. Staff believes that it has provided a variety of non-rate case motivated investment analysts' views on the cost of equity that continue to cause one to question the "...academic state of the art in the field of finance" that individuals such as Dr. Morin seem to think is something other than mainstream finance.

Staff is simply attempting to provide a recommendation based on what it believes it is tasked to do, which is provide its best estimate of the cost of common equity. Staff believes that the corroborating information it has provides shows that Staff is in the "mainstream." However, Staff also understands the difficult decision that the Commission must make regarding whether the allowed ROE should be based on the cost of common equity. For example, Staff is aware of situations in which the allowed ROE has been set higher to provide companies incentives for certain investments. However, even in these circumstances, it would be important to reliably estimate the baseline cost of equity and then attempt to determine the proper additional return that should be allowed to provide this incentive. Staff believes its testimony provides a reliable estimate of the cost of common equity.

Q. Does this conclude your Surrebuttal testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE's Tariffs to Increase its Annual Revenues for Electric Service.	)))	Case No. ER-2010-0036

AFFIDAVIT OF DAVID MURRAY

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

David Murray, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Surrebuttal Testimony in question and answer form, consisting of 30 pages to be presented in the above case; that the answers in the foregoing Surrebuttal Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

David Murray

Subscribed and sworn to before me this 5th day of March, 2010.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: December 08, 2012
Commission Number: 08412071

Notary Public

Union Electric Company,
d/b/a AmerenUE
Case No. ER-2010-0036

Five-Year Dividends Per Share, Earnings Per Share & Book Value Per Share Growth Rates for the Comparable Electric Utility Companies and Ameren

	5-Year Annual Compound Growth Rates			
Company Name	DPS	EPS	BVPS	Average of 5 Year Annual Compound Growth Rates
Alliant Energy	-5.00%	7.00%	3.00%	1.67%
American Electric Power	-6.00%	0.00%	2.50%	-1.17%
Cleco Corp.	0.50%	0.50%	9.00%	3.33%
DPL Inc.	2.00%	7.00%	2.50%	3.83%
IDACORP, Inc.	-8.00%	1.50%	3.00%	-1.17%
Northeast Utilities	8.50%	3.00%	2.00%	4.50%
PG&E Corp.	0.00%	NMF	18.00%	9.00%
Pinnacle West Capital	5.00%	-1.00%	3.00%	2.33%
Progress Energy	2.00%	-6.50%	2.50%	-0.67%
Southern Company	3.00%	4.00%	5.50%	4.17%
Westar Energy Inc.	-0.50%	21.50%	1.00%	7.33%
Xcel Energy	-4.00%	1.00%	1.00%	-0.67%
Average	**-0.21%**	**3.45%**	**4.42%**	**2.71%**
Standard Deviation	4.61%	6.75%	4.59%	3.19%
Ameren	0.00%	-1.50%	5.00%	1.17%

Source: The Value Line Investment Survey, September 25, November 6, and November 27, 2009

CORRECTED SCHEDULE 10-2

Union Electric Company,
d/b/a AmerenUE
Case No. ER-2010-0036

Constant-Growth Discounted Cash Flow (DCF) Estimated Costs of Common Equity for the Comparable Electric Utility Companies and Ameren

Company Name	(1) Expected Annual Dividend	(2) Average High/Low Stock Price	(3) Projected Dividend Yield	(4) Average of Historical & Projected Growth	(5) Estimated Cost of Common Equity
Alliant Energy	$1.60	$27.233	5.88%	2.58%	8.46%
American Electric Power	$1.66	$31.100	5.34%	1.15%	6.48%
Cleco Corp.	$1.00	$24.888	4.02%	6.56%	10.57%
DPL Inc.	$1.18	$25.987	4.54%	7.17%	11.71%
IDACORP, Inc.	$1.20	$28.807	4.17%	1.92%	6.08%
Northeast Utilities	$1.00	$23.607	4.24%	5.38%	9.61%
PG&E Corp.	$1.80	$41.308	4.36%	6.17%	10.52%
Pinnacle West Capital	$2.10	$33.020	6.36%	2.92%	9.28%
Progress Energy	$2.50	$38.440	6.50%	3.26%	9.77%
Southern Company	$1.80	$31.870	5.65%	3.95%	9.60%
Westar Energy	$1.24	$20.035	6.19%	3.07%	9.26%
Xcel Energy	$1.00	$19.562	5.11%	2.46%	7.57%
Average			**5.20%**	**3.88%**	**9.08%**
Ameren	$1.54	$25.405	6.06%	2.12%	8.18%

Proposed Dividend Yield:	**5.20%**
Proposed Range of Growth:	**4.00% - 5.00%**
Indicated Cost of Common Equity:	**9.20%-10.20%**
Ameren Company-Specific Using Average Projected Growth	8.56%

Notes: Column 1 = Estimated Dividend Declared per share represents the projected dividend for 2010.

Column 3 = (Column 1 / Column 2).

Column 5 = (Column 3 + Column 4).

Sources: Column 1 = The Value Line Investment Survey: Ratings and Reports, September 25, November 6, and November 27, 2009.

Column 2 = Schedule 14.

Column 4 = Schedule 13.

CORRECTED SCHEDULE 15

LATEST ISSUE - AUS MONTHLY REPORT

December 2009

REPORT PAGES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)

ELECTRIC COMPANIES

			PER SHARE DATA ($)				PERCENT (2)														% RETURN ON BOOK VALUE		REGULATION	
	COMPANY	LATEST 12 MONTHS EARNINGS AVAILABLE	EARNINGS	CURRENT ANNUAL DIVIDEND	BOOK VALUE (1)	STOCK PRICE 11/16/09	COMMON SHARES O/S MILL	DIV PAYOUT	DIV YIELD	MKT/ BOOK	DIV/ BOOK (2)	PRICE EARN MULT		TOTAL REV $ MILL (1)	% ELEC REV	NET PLANT $ MILL	NET PLANT PER $ REV (1)	S&P BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (3)	COMMON EQUITY (4)	TOTAL CAPITAL	ALLOWED ROE	ORDER DATE
1	Allegheny Energy, Inc. (NYSE-AYE)	9/09	1.92	0.60	17.93	22.68	170.0	31	2.6	126	3.3	11.8		3,273.5	90	8,722.6	2.66	BBB+	Baa1	40	10.1	7.7	10.46	-
2	American Electric Power Co. (NYSE-AEP)	9/09	2.84	1.64	27.39	32.12	476.9	58	5.1	117	6.0	11.3		13,443.0	94	33,821.0	2.52	BBB	Baa2	43	10.7	7.8	10.71	-
3	Central Vermont Public Serv. Corp. (NYSE-CV)	9/09	2.09	0.92	19.51	19.43	11.7	44	4.7	100	4.7	9.3		337.8	100	349.9	1.04	BBB+	NR	54	11.3	7.9	10.71	01/08
4	Cleco Corporation (NYSE-CNL)	9/09	1.78	0.90	18.43	25.73	60.6	51	3.5	140	4.9	14.5		900.8	95	2,208.6	2.45	BBB	Baa1	47	10.7	9.8	10.70	10/09
5	DPL Inc.(NYSE-DPL)	9/09	2.20	1.14	9.23	27.79	114.4	52	4.1	301	12.3	12.6		1,575.7	100	2,880.4	1.83	A	Aa3	43	24.8	13.7	11.00	12/05
6	Edison International (NYSE-EIX)	9/09	2.60	1.24	29.86	33.60	329.0	48	3.7	113	4.2	12.9		12,846.0	81	20,876.0	1.63	A	A1	44	9.1	7.1	10.71	-
7	El Paso Electric Company (ASE-EE)	9/09	1.55	0.00	16.91	28.59	44.6	0	0.0	122	NM	13.3		847.5	97	1,708.4	2.02	BBB	Baa1	49	9.5	8.4	11.25	-
8	FirstEnergy Corporation (NYSE-FE)	9/09	3.59	2.20	27.93	42.57	304.0	61	5.2	152	7.9	11.9		13,214.0	88	18,749.0	1.42	BBB+	Baa1	35	12.4	8.2	10.67	-
9	FPL Group, Inc. (NYSE-FPL)	9/09	4.13	1.89	31.21	51.99	408.0	46	3.6	167	6.1	12.6		15,992.0	72	35,216.0	2.20	A	Aa2	42	14.3	8.7	11.75	08/05
10	Great Plains Energy Incorporated (NYSE-GXP)	9/09	1.14	0.83	20.74	18.19	134.9	73	4.6	88	4.0	16.0		1,931.3	100	6,531.5	3.38	BBB+	A3	44	5.2	5.2	10.45	-
11	Hawaiian Electric Industries, Inc. (NYSE-HE)	9/09	0.93	1.24	15.54	19.43	91.5	134	6.4	125	8.0	20.9		2,189.0	99	2,736.8	1.25	BBB	Baa2	45	11.6	6.5	10.82	-
12	IDACORP, Inc. (NYSE-IDA)	9/09	2.30	1.20	29.28	29.61	47.1	52	4.1	101	4.1	12.9		1,013.7	100	2,847.1	2.81	A-	A3	50	8.2	6.6	10.50	05/09
13	Maine & Maritimes Corporation (ASE-MAM)	9/09	1.01	0.20	27.14	37.00	1.7	20	0.5	136	0.7	36.6		36.3	87	69.2	1.91	NR	NR	64	3.8	4.3	10.20	07/06
14	OGE Energy Corp. (NYSE-OGE)	9/09	2.54	1.42	21.01	34.30	97.7	56	4.1	163	6.8	13.5		2,782.0	61	5,773.4	2.08	BBB+	Baa1	48	12.6	8.8	10.13	-
15	Otter Tail Corporation (NDQ-OTTR)	9/09	0.88	1.19	18.73	24.49	35.8	135	4.9	131	6.4	27.8		1,207.0	27	1,133.7	0.94	BBB-	Baa1	61	4.6	5.1	11.22	-
16	Pinnacle West Capital Corp. (NYSE-PNW)	9/09	0.57	2.10	33.50	33.61	101.4	NM	6.2	100	6.3	59.0		3,236.7	97	9,007.3	2.78	BBB-	Baa2	48	1.7	2.2	10.75	06/07
17	PNM Resources, Inc. (NYSE-PNM)	9/09	-0.18	0.50	19.54	11.39	86.7	NM	4.4	58	2.6	NM		1,672.3	100	3,280.3	1.96	BB+	Baa2	49	NM	2.8	10.38	-
18	Portland General Electric (NYSE-POR)	9/09	1.53	1.02	20.66	19.53	75.2	67	5.2	95	4.9	12.8		1,768.0	96	3,800.0	2.15	A	A3	49	7.4	7.0	10.80	01/07
19	PPL Corporation (NYSE-PPL)	9/09	1.51	1.38	14.91	30.76	376.7	91	4.5	206	9.3	20.4		8,350.0	47	12,877.0	1.54	A-	A3	41	10.5	7.3	9.57	-
20	Progress Energy Inc. (NYSE-PGN)	9/09	2.89	2.48	33.50	38.69	280.0	86	6.4	115	7.4	13.4		9,731.0	96	19,434.0	2.00	A-	A1	45	8.5	7.1	12.42	-
21	Southern Company (NYSE-SO)	9/09	1.98	1.75	17.95	31.90	800.2	89	5.5	178	9.8	16.1		16,035.0	99	38,141.8	2.38	A	A2	42	11.3	7.3	11.93	-
22	UIL Holdings Corporation (NYSE-UIL)	9/09	2.06	1.73	19.24	27.10	30.1	84	6.4	141	9.0	13.2		910.3	100	1,113.4	1.22	NR	Baa2	45	10.7	7.7	8.75	02/09
23	Westar Energy, Inc. (NYSE-WR)	9/09	1.39	1.20	20.61	20.23	109.8	86	5.9	98	5.8	14.6		1,824.2	73	5,748.3	3.15	BBB	Baa1	46	7.9	6.8	10.00	12/05
24	AVERAGE							65	4.4	134	6.1	17.6								47	9.9	7.2	10.69	

COMBINATION ELECTRIC & GAS COMPANIES

	COMPANY	LATEST 12 MONTHS EARNINGS AVAILABLE	PER SHARE DATA ($) EARNINGS	CURRENT ANNUAL DIVIDEND	BOOK VALUE (1)	STOCK PRICE 11/16/09	COMMON SHARES O/S MILL	PERCENT (2) DIV PAYOUT	DIV YIELD	MKT/ BOOK	DIV/ BOOK (2)	PRICE EARN MULT	TOTAL REV $ MILL (1)	% ELEC REV	NET PLANT $ MILL	NPT PLANT PER $ REV (1)	S&P BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (3)	% RETURN ON BOOK VALUE COMMON EQUITY (4)	% RETURN ON BOOK VALUE TOTAL CAPITAL	REGULATION ALLOWED ROE	REGULATION ORDER DATE
1	AES Corporation (NYSE-AES)	9/09	0.99	0.00	6.77	13.66	677.0	0	0.0	202	NM	13.8	14,186.0	51	24,226.0	1.71	BBB	A3	16	14.9	8.5	-	06/96
2	ALLETE, Inc. (NYSE-ALE)	9/09	2.06	1.76	25.95	33.46	34.9	85	5.3	129	6.8	16.2	744.5	90	1,530.5	2.06	A-	A2	58	8.7	7.1	10.74	04/09
3	Alliant Energy Corporation (NYSE-LNT)	9/09	0.99	1.50	25.02	27.94	110.3	152	5.4	112	6.0	28.2	3,459.9	71	6,037.8	1.75	A-	A2	51	4.6	5.7	11.02	-
4	Ameren Corporation (NYSE-AEE)	9/09	2.74	1.54	35.93	25.79	218.2	56	6.0	72	4.3	9.4	7,323.0	82	17,272.0	2.36	BBB	Baa1	49	7.9	6.9	10.64	-
5	Avista Corporation (NYSE-AVA)	9/09	1.51	0.84	18.88	19.99	54.9	55	4.2	106	4.4	13.2	1,556.7	54	2,562.7	1.65	BBB+	Baa1	47	8.2	6.9	10.40	-
6	Black Hills Corporation (NYSE-BKH)	9/09	-1.27	1.42	27.50	24.14	38.6	NM	5.9	88	5.2	NM	1,328.9	44	2,095.7	1.58	BBB	A3	59	NM	1.7	10.71	-
7	CenterPoint Energy (NYSE-CNP)	9/09	1.06	0.76	6.63	12.87	390.3	72	5.9	194	11.5	12.1	8,756.0	19	10,548.0	1.20	BBB+	Baa1	22	14.9	8.1	9.97	-
8	CH Energy Group, Inc. (NYSE-CHG)	9/09	2.43	2.16	33.14	42.60	15.9	89	5.1	129	6.5	17.5	1,101.0	49	1,004.2	0.91	A	A3	50	7.3	6.4	10.00	06/09
9	CMS Energy Corporation (NYSE-CMS)	9/09	1.19	0.50	11.57	14.56	227.6	42	3.4	126	4.3	12.2	6,452.0	54	9,566.0	1.48	BBB	A3	27	10.1	7.0	10.93	-
10	Consolidated Edison, Inc. (NYSE-ED)	9/09	3.00	2.36	36.03	41.85	276.0	79	5.6	116	6.6	14.0	12,756.0	64	21,949.0	1.72	A-	A3	48	8.4	7.1	10.03	-
11	Constellation Energy Group, Inc. (NYSE-CEG)	9/09	-7.74	0.96	20.08	32.47	200.8	NM	3.0	162	4.8	NM	17,121.6	17	11,453.8	0.67	BBB	Baa2	37	NM	NM	11.00	-
12	Dominion Resources, Inc. (NYSE-D)	9/09	2.78	1.75	18.97	37.10	597.0	63	4.7	196	9.2	13.3	16,094.0	44	24,683.0	1.53	A	NR	39	15.1	9.0	10.50	-
13	DTE Energy Company (NYSE-DTE)	9/09	3.36	2.12	37.79	40.20	165.0	63	5.3	106	5.6	12.0	8,074.0	57	12,395.0	1.54	A-	A2	44	9.3	7.8	11.00	-
14	Duke Energy Corporation (NYSE-DUK)	9/09	0.78	0.96	16.62	16.20	1300.0	123	5.9	97	5.8	20.8	12,754.0	79	36,435.0	2.86	A	Baa2	57	4.7	4.7	10.89	-
15	Empire District Electric Co. (NYSE-EDE)	9/09	1.20	1.28	16.18	18.36	34.9	107	7.0	113	7.9	15.3	507.6	86	1,430.2	2.82	BBB+	Baa1	44	7.4	6.6	10.80	-
16	Entergy Corporation (NYSE-ETR)	9/09	5.52	3.00	43.31	79.67	195.9	54	3.8	184	6.9	14.4	11,247.9	75	22,966.3	2.04	A-	Baa1	42	13.4	8.5	10.76	-
17	Exelon Corporation (NYSE-EXC)	9/09	4.25	2.10	18.87	47.41	662.0	49	4.4	251	11.1	11.2	17,695.0	99	26,653.0	1.51	A-	A3	51	23.1	14.8	10.30	-
18	Integrys Energy Group (NYSE-TEG)	9/09	-1.00	2.72	37.30	38.74	76.9	NM	7.0	104	7.3	NM	9,344.5	14	4,916.1	0.53	A-	A2	51	NM	1.8	10.69	-
19	MDU Resources Group, Inc. (NYSE-MDU)	9/09	-1.14	0.63	13.57	22.56	185.4	NM	2.8	166	4.6	NM	4,455.7	5	3,874.8	0.87	BBB-	A3	62	NM	NM	11.31	-
20	MGE Energy, Inc. (NDQ-MGEE)	9/09	2.12	1.48	21.49	35.88	23.1	70	4.1	167	6.9	16.9	533.5	60	927.2	1.68	AA-	Aa2	65	10.2	7.7	10.80	12/07
21	NiSource Inc. (NYSE-NI)	9/09	0.98	0.92	17.21	14.04	275.4	94	6.6	82	5.3	14.3	6,999.7	17	10,582.1	1.51	BBB-	Baa2	40	5.7	5.5	11.32	-
22	Northeast Utilities (NYSE-NU)	9/09	1.90	0.95	20.08	23.91	176.0	50	4.0	119	4.7	12.6	5,572.0	80	8,623.1	1.55	BBB+	A3	42	9.7	7.4	9.72	-
23	Northwestern Corporation (NYSE-NWE)	9/09	1.91	1.34	19.62	25.25	39.5	70	5.3	129	6.8	13.2	1,165.6	66	1,899.5	1.63	A-	A1	47	9.0	8.3	11.11	-
24	NSTAR (NYSE-NST)	9/09	2.32	1.50	17.49	32.80	107.0	65	4.6	188	8.6	14.1	3,240.7	79	4,512.1	1.39	AA-	A1	39	5.4	5.5	12.50	-
25	NV Energy (NYSE-NVE)	9/09	0.77	0.44	13.78	11.94	235.4	57	3.7	87	3.2	15.5	3,579.1	94	8,339.5	2.39	BB	Ba3	37	8.1	7.5	10.67	-
26	Pepco Holdings, Inc. (NYSE-POM)	9/09	1.20	1.08	19.21	15.78	221.0	90	6.8	82	5.6	13.2	9,605.0	50	8,674.0	0.90	A-	A3	44	6.2	6.6	10.15	-
27	PG&E Corporation (NYSE-PCG)	9/09	3.54	1.68	26.19	42.60	388.0	47	3.9	163	6.4	12.0	13,503.0	76	28,184.0	2.09	BBB+	A3	49	13.6	10.2	11.35	03/07
28	Public Service Enterprise Group (NYSE-PEG)	9/09	2.88	1.33	17.12	31.72	507.2	46	4.2	185	7.8	11.0	12,785.0	67	15,143.0	1.18	A-	A2	50	18.1	12.5	9.88	-
29	SCANA Corporation (NYSE-SCG)	9/09	2.97	1.88	27.31	35.00	122.5	63	5.4	128	6.9	11.8	4,443.0	48	8,822.0	1.99	A-	A3	44	11.2	7.9	10.67	-
30	SEMPRA Energy (NYSE-SRE)	9/09	4.66	1.56	35.20	52.68	248.5	33	3.0	150	4.4	11.3	7,943.0	47	17,772.0	2.24	A+	Aa3	50	11.5	8.0	11.46	-
31	TECO Energy, Inc. (NYSE-TE)	9/09	0.86	0.80	9.69	14.83	213.2	93	5.4	153	8.3	17.2	3,315.8	66	5,477.7	1.65	BBB	Baa1	32	10.5	7.7	11.00	-
32	UniSource Energy Corporation (NYSE-UNS)	9/09	2.86	1.16	20.77	30.32	35.9	41	3.8	146	5.6	10.6	1,383.1	85	2,767.4	2.00	BBB+	NR	29	16.7	10.0	10.13	-
33	Unitil Corporation (ASE-UTL)	9/09	1.64	1.38	17.80	20.00	10.8	84	6.9	112	7.8	12.2	365.3	60	437.9	1.20	NR	NR	43	8.2	7.6	9.93	-
34	Vectren Corporation (NYSE-VVC)	9/09	1.41	1.36	16.82	23.47	81.1	96	5.8	140	8.1	16.6	2,227.6	23	2,841.5	1.28	A	A3	43	8.5	7.0	10.43	-
35	Wisconsin Energy Corporation (NYSE-WEC)	9/09	3.08	1.35	29.55	44.91	118.0	44	3.0	152	4.6	14.6	4,261.2	63	8,903.7	2.09	A-	A1	47	10.8	6.9	10.75	-
36	Xcel Energy Inc. (NYSE-XEL)	9/09	1.47	0.98	15.72	20.03	457.5	67	4.9	127	6.2	13.6	9,733.8	79	18,514.8	1.90	A	A2	47	9.6	8.2	10.76	-
37	AVERAGE							69	4.8	138	6.5	14.2							45	10.3	7.4	10.69	

Schedule 1-2

NATURAL GAS DISTRIBUTION, TRANSMISSION AND INTEGRATED NATURAL GAS COMPANIES

	COMPANY	LATEST 12 MONTHS EARNINGS AVAILABLE	PER SHARE DATA ($) EARNINGS	CURRENT ANNUAL DIVIDEND	BOOK VALUE (1)	STOCK PRICE 11/16/09	COMMON SHARES O/S MILL	PERCENT (2) DIV PAYOUT	DIV YIELD	MKT/ BOOK	DIV/ BOOK (2)	PRICE EARN MULT	REV $ MILL (1) 2484	% GAS REV	NET PLANT $ MILL	NET PLANT PER $ REV (1)	S&P BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (3)	% RETURN ON BOOK VALUE COMMON EQUITY (4)	% RETURN ON BOOK VALUE TOTAL CAPITAL	REGULATION ALLOWED ROE	REGULATION ORDER DATE
1	AGL Resources Inc. (NYSE-AGL)	9/09	1.54	1.72	22.27	34.57	77.2	61	5.0	155	7.7	22.4	2,484.0	58	4,030.0	1.62	A-	A3	43	12.6	7.8	10.46	-
2	Atmos Energy Corporation (NYSE-ATO)	9/09	2.08	1.34	23.65	28.82	92.0	64	4.6	122	5.7	13.9	4,969.1	60	4,439.1	0.89	BBB+	Baa2	50	9.0	7.8	11.67	-
3	Chesapeake Utilities Corporation (NYSE-CPK)	9/09	2.05	1.26	18.73	31.15	6.9	61	4.0	166	6.7	15.2	249.5	71	291.5	1.17	NR	NR	58	11.2	8.6	10.50	-
4	Delta Natural Gas Company (NDQ-DGAS)	9/09	1.33	1.30	17.32	27.99	3.3	98	4.6	162	7.5	21.1	95.7	66	129.0	1.35	NR	NR	46	7.7	6.6	-	12/99
5	El Paso Corporation (NYSE-EP)	9/09	-3.58	0.04	3.07	10.37	715.9	NM	0.4	338	1.3	NM	4,781.0	57	17,200.0	3.60	BB	Baa3	12	NM	NM	-	11/02
6	Energen Corporation (NYSE-EGN)	9/09	3.65	0.50	27.63	45.22	72.0	14	1.1	164	1.8	12.4	1,453.4	42	711.2	0.49	BBB	A1	78	14.5	12.7	13.40	06/02
7	Energy, Incorporated (NDQ-EGAS)	9/09	0.76	0.54	7.26	8.78	4.3	71	6.2	121	7.4	11.6	76.7	81	39.8	0.52	NR	NR	65	10.5	8.8	12.63	-
8	EQT Corporation (NYSE-EQT)	9/09	1.54	0.88	16.06	43.25	131.5	57	2.0	269	5.5	28.1	1,334.7	65	4,633.8	3.47	BBB	Baa1	52	7.0	6.4	11.00	-
9	Laclede Group, Inc. (NYSE-LG)	6/09	3.00	1.54	24.11	32.22	22.0	51	4.8	134	6.4	10.7	2,057.7	52	849.0	0.41	A	A2	50	13.1	13.7	-	10/05
10	National Fuel Gas Company (NYSE-NFG)	6/09	1.26	1.34	20.37	47.36	80.2	106	2.8	232	6.6	37.6	2,176.8	46	3,067.5	1.41	BBB	Baa1	57	7.0	6.9	9.50	-
11	New Jersey Resources Corp. (NYSE-NJR)	6/09	2.63	1.24	17.15	36.07	42.0	47	3.4	210	7.2	13.7	3,007.0	36	1,049.5	0.35	NR	Aa3	61	16.2	10.8	10.30	10/08
12	NICOR Inc. (NYSE-GAS)	9/09	3.19	1.86	22.00	39.80	45.5	58	4.7	181	8.5	12.5	2,924.8	82	2,920.7	1.00	A-	Aa3	67	14.8	10.8	10.17	03/09
13	Northwest Natural Gas Co. (NYSE-NWN)	9/09	2.89	1.66	24.17	44.21	26.5	57	3.8	183	6.9	15.3	1,052.5	98	1,614.7	1.53	AA-	A1	47	12.3	8.8	10.20	-
14	ONEOK, Inc. (NYSE-OKE)	9/09	2.77	1.68	20.09	40.10	106.5	61	4.2	200	8.4	14.5	10,225.4	9	7,698.6	0.75	BBB	Baa2	24	14.0	6.8	9.90	-
15	Piedmont Natural Gas Co., Inc. (NYSE-PNY)	7/09	1.17	1.08	12.99	23.37	73.0	92	4.6	180	8.3	20.0	1,727.9	75	2,268.1	1.31	A	A3	54	9.2	7.7	10.60	-
16	Questar Corporation (NYSE-STR)	9/09	2.13	0.52	18.95	43.01	176.3	24	1.2	227	2.7	20.2	2,934.8	33	7,470.4	2.55	BBB+	A3	60	11.4	9.1	10.00	08/08
17	RGC Resources, Inc. (NDQ-RGCO)	6/09	2.07	1.28	20.66	28.00	2.2	62	4.6	136	6.2	13.5	82.6	98	77.1	0.93	NR	NR	62	10.2	8.9	9.85	-
18	South Jersey Industries, Inc. (NYSE-SJI)	9/09	0.91	1.19	17.70	35.50	29.8	131	3.4	201	6.7	39.2	891.4	59	1,023.7	1.15	A	A2	51	10.9	7.7	10.00	07/04
19	Southern Union Company (NYSE-SUG)	9/09	1.74	0.60	19.44	20.53	124.6	34	2.9	106	3.1	11.8	2,302.5	33	5,581.8	2.42	BBB-	Baa3	40	9.3	6.9	10.28	-
20	Southwest Gas Corporation (NYSE-SWX)	9/09	1.63	0.95	23.74	27.00	44.9	58	3.5	114	4.0	16.6	1,904.4	85	3,039.5	1.60	BBB	Baa3	49	7.0	7.2	10.20	-
21	Southwestern Energy Company (NYSE-SWN)	9/09	-0.28	0.00	6.36	42.71	349.0	0	0.0	NM	NM	NM	2,021.4	72	3,827.2	1.89	BB+	Ba2	70	NM	NM	10.54	07/07
22	UGI Corporation (NYSE-UGI)	6/09	2.36	0.80	14.58	23.95	108.6	34	3.3	164	5.5	10.1	6,067.7	21	2,823.3	0.47	NR	A3	39	16.3	9.9	-	-
23	WGL Holdings, Inc. (NYSE-WGL)	6/09	2.38	1.47	22.43	32.01	50.4	62	4.6	143	6.6	13.4	2,685.9	56	2,243.3	0.84	AA-	A2	60	10.9	9.0	10.20	-
24	Williams Companies, Inc. (NYSE-WMB)	9/09	0.40	0.44	14.08	20.66	590.1	110	2.1	147	3.1	51.7	8,267.0	19	18,464.0	2.23	BBB-	Baa2	48	3.6	5.2	-	-
25	AVERAGE							62	3.4	176	5.8	19.3							52	10.9	8.6	10.60	

TELEPHONE COMPANIES

	COMPANY	LATEST 12 MONTHS EARNINGS AVAILABLE	PER SHARE DATA ($) EARNINGS	CURRENT ANNUAL DIVIDEND	BOOK VALUE (1)	STOCK PRICE 11/16/09	COMMON SHARES O/S MILL	PERCENT (2) DIV PAYOUT	DIV YIELD	MKT/ BOOK	DIV/ BOOK (2)	PRICE EARN MULT	TOTAL REV $ MILL (1)	% REG TEL REV LOCAL ILEC OR CLEC	NET PLANT $ MILL	NET PLANT PER $ REV (1)	S&P BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (3)	% RETURN ON BOOK VALUE COMMON EQUITY (4)	% RETURN ON BOOK VALUE TOTAL CAPITAL	REGULATION ALLOWED ROE	REGULATION ORDER DATE
1	Alaska Comm. Systems Group (NDQ-ALSK)	9/09	0.47	0.86	1.04	6.65	44.4	182	12.9	NM	NM	14.1	380.5	66	479.7	1.26	NR	NR	8	NM	9.9	-	-
2	AT&T Inc. (NYSE-T)	9/09	2.02	1.64	16.95	26.29	5,901.0	81	6.2	155	9.7	13.0	123,236.0	30	98,321.0	0.80	A	A2	58	11.7	8.8	13.02	-
3	BCE, Inc. (NYSE-BCE)	6/09	1.14	1.50	15.66	25.97	768.0	132	5.8	166	9.6	22.9	14,957.5	48	16,715.4	1.12	NR	Baa1	46	6.2	5.3	-	-
4	CenturyTel, Inc. (NYSE-CTL)	9/09	2.84	2.80	31.38	34.78	298.4	99	8.1	111	8.9	12.3	3,788.1	63	9,363.2	2.47	BBB-	Baa3	53	6.1	5.6	10.00	-
5	Cincinnati Bell Inc. (NYSE- CBB)	9/09	0.49	0.00	NM	3.05	213.2	0	0.0	NM	NM	6.2	1,347.6	61	1,086.7	0.81	B-	Ba1	NM	NM	17.1	-	-
6	Frontier Communications Corp (NYSE FTR)	9/09	0.49	1.00	NM	7.32	311.3	204	13.7	NM	NM	14.9	2,144.3	75	3,130.9	1.46	NR	Ba2	8	NM	9.7	-	-
7	General Communication, Inc. (NDQ-GNCMA)	9/09	0.09	0.00	5.42	6.35	49.6	0	0.0	117	NM	70.6	594.9	9	845.5	1.42	NR	Baa2	24	0.5	5.5	-	-
8	Qwest Communications International (NYSE-Q)	9/09	0.43	0.32	NM	3.77	1,719.5	75	8.5	NM	NM	8.8	12,632.0	58	13,287.0	1.05	NR	Ba1	NM	NM	11.9	11.11	-
9	Telephone & Data Systems, Inc. (ASE-TDS)	9/09	0.16	0.43	34.74	31.41	108.7	NM	1.4	90	1.2	NM	5,021.8	16	3,472.9	0.69	NR	Baa2	62	0.4	2.8	-	-
10	PAETEC Holdings Corp. (NDQ-PAET)	9/09	-1.00	0.00	1.32	3.84	145.2	0	0.0	292	NM	NM	1,590.3	79	608.8	0.38	NR	B1	17	NM	NM	-	-
11	Verizon Communications (NYSE-VZ)	9/09	2.05	1.90	15.20	30.33	2,841.0	93	6.3	200	12.5	14.8	105,362.0	44	90,834.0	0.86	A+	Baa1	29	12.4	6.3	12.53	-
12	Windstream Corporation (NYSE-WIN)	9/09	0.79	1.00	0.44	10.02	435.2	127	10.0	NM	NM	12.7	3,008.0	96	3,751.8	1.25	BB-	Ba3	4	NM	13.2	-	-
13	AVERAGE							90	6.1	162	8.4	19.0							31	6.2	8.7	11.66	

Schedule 1-4

SMALL TELEPHONE COMPANIES

	COMPANY	LATEST 12 MONTHS EARNINGS AVAILABLE	PER SHARE DATA ($) EARNINGS	CURRENT ANNUAL DIVIDEND	BOOK VALUE (1)	STOCK PRICE 11/16/09	COMMON SHARES O/S MILL	PERCENT (2) DIV PAYOUT	DIV YIELD	MKT/ BOOK	DIV/ BOOK (2)	PRICE EARN MULT	TOTAL REV $ MILL (1)	% REG TEL REV LOCAL OR CLEC	NET PLANT $ MILL	NET PLANT PER $ REV (1)	S&P BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (3)	% RETURN ON BOOK VALUE COMMON EQUITY (4)	% RETURN ON BOOK VALUE TOTAL CAPITAL	REGULATION ALLOWED ROE	REGULATION ORDER DATE
1	Atlantic Tele-Network, Inc. (NDQ-ATNI)	9/09	2.42	0.80	16.56	53.16	15.3	33	1.5	321	4.8	22.0	237.6	23	207.6	0.87	NR	NR	71	15.3	12.0	-	-
2	Hickory Tech Corportion (NDQ-HTCO)	9/09	0.88	0.52	2.77	8.44	13.1	59	6.2	305	NM	9.6	138.4	60	152.2	1.10	NR	NR	22	24.0	9.2	-	-
3	Consolidated Comm. Holdings, Inc. (NDQ-CNSL)	9/09	0.71	1.55	2.10	14.22	29.6	218	10.9	NM	NM	20.0	408.3	45	382.6	0.94	NR	NR	7	22.5	8.5	-	-
4	SureWest Communications (NDQ-SURW)	9/09	0.11	0.00	19.01	9.23	13.9	0	0.0	49	NM	NM	239.1	32	523.9	2.19	NR	NR	56	NM	2.2	-	-
5	Warwick Valley Telephone Co. (NDQ-WWVY)	9/09	1.17	0.88	6.58	12.42	5.4	75	7.1	189	13.4	10.6	23.6	95	33.5	1.42	NR	NR	88	17.9	17.2	-	-
6	AVERAGE							77	5.1	216	9.1	15.6							49	19.9	9.8		

WATER COMPANIES

	COMPANY	LATEST 12 MONTHS EARNINGS AVAILABLE	PER SHARE DATA ($) EARNINGS	CURRENT ANNUAL DIVIDEND	BOOK VALUE (1)	STOCK PRICE 11/16/09	COMMON SHARES O/S MILL	PERCENT (2) DIV PAYOUT	DIV YIELD	MKT/ BOOK	DIV/ BOOK (2)	PRICE EARN MULT	(1) 358 865 2411.417 662.486 REV	% REG WATER REV	NET PLANT $ MILL	NET PLANT PER $ REV (1)	S&P BOND RATING	MOODY'S BOND RATING	COMMON EQUITY RATIO (3)	% RETURN ON BOOK VALUE COMMON EQUITY (4)	% RETURN ON BOOK VALUE TOTAL CAPITAL	REGULATION ALLOWED ROE	REGULATION ORDER DATE
1	American States Water Co. (NYSE-AWR)	9/09	1.60	1.04	19.44	33.17	18.5	65	3.1	171	5.3	20.8	358.9	75	959.8	2.67	A	A2	54	8.6	7.8	10.50	10/09
2	American Water Works Co., Inc. (NYSE-AWK)	9/09	5.53	0.84	22.82	20.42	174.7	15	4.1	89	3.7	3.7	2,411.4	90	9,570.5	3.97	NR	NR	43	NM	0.7	9.51	-
3	Aqua America, Inc. (NYSE-WTR)	9/09	0.77	0.58	7.91	16.10	136.3	76	3.6	204	7.3	21.0	662.5	93	2,695.6	4.07	AA-	NR	44	9.8	7.1	10.20	-
4	Artesian Resources Corp. (NDQ-ARTNA)	9/09	0.94	0.75	12.03	17.12	7.5	80	4.4	142	6.2	18.2	59.8	89	256.3	4.29	NR	NR	46	7.9	7.0	10.25	05/06
5	California Water Service Group (NYSE-CWT)	9/09	1.99	1.18	20.20	36.22	20.8	59	3.3	179	5.8	18.2	442.6	98	754.2	1.70	AA-	NR	59	12.3	9.6	10.20	05/09
6	Connecticut Water Service, Inc. (NDQ-CTWS)	9/09	1.29	0.90	12.72	22.93	8.5	70	3.9	180	7.1	17.8	68.1	90	368.4	5.41	AAA	NR	54	13.9	9.1	10.13	01/07
7	Middlesex Water Company (NDQ-MSEX)	9/09	0.74	0.72	10.26	16.43	13.7	98	4.4	161	7.1	22.3	90.7	89	328.6	3.62	A	NR	44	7.2	5.5	10.00	-
8	Pennichuck Corporation (NDQ-PNNW)	9/09	0.62	0.70	11.16	23.59	4.3	113	3.0	211	6.3	38.2	32.8	91	122.1	3.72	NR	NR	43	5.4	5.4	8.39	-
9	SJW Corporation (NYSE-SJW)	9/09	0.89	0.66	13.61	22.85	18.7	74	2.9	168	4.8	25.7	217.1	95	517.9	2.39	NR	NR	51	9.1	7.9	10.13	01/08
10	Southwest Water Company (NDQ-SWWC)	9/09	-0.97	0.20	4.82	6.18	24.6	NM	3.2	128	4.2	NM	216.5	48	270.7	1.25	NR	NR	43	NM	NM	10.00	06/07
11	York Water Company (NDQ-YORW)	9/09	0.66	0.56	6.81	14.34	12.4	76	3.5	211	7.3	21.7	36.6	91	196.8	5.37	A-	NR	52	9.8	7.8	10.00	09/06
12	AVERAGE							73	3.6	168	5.9	20.8							48	9.3	6.8	9.94	

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COMPOSITE INDEX

ELECTRIC COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	1999	4.8	15.2
YEAR	2000	5.4	13.6
YEAR	2001	4.5	14.0
YEAR	2002	5.0	14.8
YEAR	2003	5.0	15.4
YEAR	2004	4.4	18.4
YEAR	2005	4.1	20.9
YEAR	2006	3.8	20.8
YEAR	2007	3.4	18.5
YEAR	2008	3.9	16.1
YEAR TO DATE	2009	4.8	14.1
JANUARY	2009	4.7	13.1
FEBRUARY	2009	5.2	12.2
MARCH	2009	5.2	12.2
APRIL	2009	5.2	11.4
MAY	2009	5.2	11.3
JUNE	2009	5.2	13.6
JULY	2009	4.8	14.9
AUGUST	2009	4.7	15.1
SEPTEMBER	2009	4.5	14.1
OCTOBER	2009	4.4	14.8
NOVEMBER	2009	4.4	14.7
DECEMBER	2009	4.4	17.6

COMBINATION GAS & ELECTRIC COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	1999	4.7	16.0
YEAR	2000	5.0	16.1
YEAR	2001	4.1	15.3
YEAR	2002	4.9	14.9
YEAR	2003	3.8	15.3
YEAR	2004	3.4	17.1
YEAR	2005	3.3	18.9
YEAR	2006	3.2	18.7
YEAR	2007	3.3	18.3
YEAR	2008	4.0	15.7
YEAR TO DATE	2009	5.2	12.8
JANUARY	2009	5.0	13.3
FEBRUARY	2009	5.6	12.3
MARCH	2009	5.6	11.1
APRIL	2009	5.7	11.4
MAY	2009	5.7	11.4
JUNE	2009	5.7	11.6
JULY	2009	5.2	13.0
AUGUST	2009	5.1	13.3
SEPTEMBER	2009	4.9	14.0
OCTOBER	2009	4.8	14.4
NOVEMBER	2009	4.8	14.0
DECEMBER	2009	4.8	14.2

NATURAL GAS DISTRIBUTION COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	1999	4.4	19.5
YEAR	2000	4.3	19.0
YEAR	2001	4.1	16.6
YEAR	2002	4.3	17.3
YEAR	2003	4.0	16.2
YEAR	2004	3.3	17.0
YEAR	2005	3.1	19.8
YEAR	2006	3.1	17.2
YEAR	2007	2.9	19.5
YEAR	2008	13.1	17.4
YEAR TO DATE	2009	3.8	14.4
JANUARY	2009	3.9	11.9
FEBRUARY	2009	3.9	12.3
MARCH	2009	3.9	11.7
APRIL	2009	4.1	12.5
MAY	2009	4.1	12.4
JUNE	2009	4.1	13.3
JULY	2009	3.8	14.5
AUGUST	2009	3.8	14.4
SEPTEMBER	2009	3.6	15.5
OCTOBER	2009	3.5	16.1
NOVEMBER	2009	3.4	16.7
DECEMBER	2009	3.4	19.3

TELEPHONE COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	1999	1.5	28.2
YEAR	2000	0.9	27.9
YEAR	2001	0.9	26.3
YEAR	2002	1.4	21.1
YEAR	2003	1.7	21.6
YEAR	2004	2.3	21.5
YEAR	2005	2.6	22.5
YEAR	2006	2.6	21.1
YEAR	2007	2.7	20.1
YEAR	2008	4.4	14.3
YEAR TO DATE	2009	6.0	14.6
JANUARY	2009	5.7	12.5
FEBRUARY	2009	6.2	12.1
MARCH	2009	6.2	12.1
APRIL	2009	6.4	14.9
MAY	2009	7.0	11.4
JUNE	2009	5.4	13.8
JULY	2009	6.3	13.5
AUGUST	2009	6.6	13.5
SEPTEMBER	2009	6.2	14.8
OCTOBER	2009	6.0	16.1
NOVEMBER	2009	5.9	16.5
DECEMBER	2009	6.1	19.0

SMALL TELEPHONE COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	1999	NA	NA
YEAR	2000	2.4	24.4
YEAR	2001	2.8	20.0
YEAR	2002	2.6	20.1
YEAR	2003	2.8	21.7
YEAR	2004	2.6	19.3
YEAR	2005	3.5	17.2
YEAR	2006	3.8	21.6
YEAR	2007	4.5	20.4
YEAR	2008	8.3	16.1
YEAR TO DATE	2009	7.5	18.4
JANUARY	2009	12.7	9.1
FEBRUARY	2009	8.9	8.3
MARCH	2009	8.9	8.3
APRIL	2009	9.7	12.7
MAY	2009	9.4	13.8
JUNE	2009	8.1	18.8
JULY	2009	5.8	20.9
AUGUST	2009	5.6	24.4
SEPTEMBER	2009	5.6	25.0
OCTOBER	2009	5.2	28.2
NOVEMBER	2009	5.0	28.4
DECEMBER	2009	5.1	15.6

WATER COMPANIES

		DIVIDEND YIELD	PRICE EARNINGS MULTIPLE
YEAR	1999	3.7	19.7
YEAR	2000	3.5	21.4
YEAR	2001	3.4	21.4
YEAR	2002	3.1	22.2
YEAR	2003	3.2	23.2
YEAR	2004	3.1	27.9
YEAR	2005	2.8	28.7
YEAR	2006	2.8	30.9
YEAR	2007	2.8	28.1
YEAR	2008	3.1	23.1
YEAR TO DATE	2009	3.5	21.3
JANUARY	2009	3.5	20.0
FEBRUARY	2009	3.5	20.1
MARCH	2009	3.5	20.1
APRIL	2009	3.5	21.0
MAY	2009	3.6	19.1
JUNE	2009	3.7	20.4
JULY	2009	3.6	21.2
AUGUST	2009	3.4	22.5
SEPTEMBER	2009	3.5	21.7
OCTOBER	2009	3.3	22.8
NOVEMBER	2009	3.4	22.6
DECEMBER	2009	3.6	20.8

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AUS INDUSTRY RANKINGS

ELECTRIC COMPANIES

DIVIDEND YIELD

HIGH		LOW	
Hawaiian Electric Industries, Inc. (NYSE-HE)	6.4	El Paso Electric Company (ASE-EE)	0.0
Progress Energy Inc. (NYSE-PGN)	6.4	Maine & Maritimes Corporation (ASE-MAM)	0.5
UIL Holdings Corporation (NYSE-UIL)	6.4	Allegheny Energy, Inc. (NYSE-AYE)	2.6
Pinnacle West Capital Corp. (NYSE-PNW)	6.2	Cleco Corporation (NYSE-CNL)	3.5
Westar Energy, Inc. (NYSE-WR)	5.9	FPL Group, Inc. (NYSE-FPL)	3.6
Southern Company (NYSE-SO)	5.5	Edison International (NYSE-EIX)	3.7
FirstEnergy Corporation (NYSE-FE)	5.2	DPL Inc.(NYSE-DPL)	4.1
Portland General Electric (NYSE-POR)	5.2	IDACORP, Inc. (NYSE-IDA)	4.1
American Electric Power Co. (NYSE-AEP)	5.1	OGE Energy Corp. (NYSE-OGE)	4.1
Otter Tail Corporation (NDQ-OTTR)	4.9	PNM Resources, Inc. (NYSE-PNM)	4.4

MARKET/BOOK RATIO

HIGH		LOW	
DPL Inc.(NYSE-DPL)	301	PNM Resources, Inc. (NYSE-PNM)	58
PPL Corporation (NYSE-PPL)	206	Great Plains Energy Incorporated (NYSE-GXP)	88
Southern Company (NYSE-SO)	178	Portland General Electric (NYSE-POR)	95
FPL Group, Inc. (NYSE-FPL)	167	Westar Energy, Inc. (NYSE-WR)	98
OGE Energy Corp. (NYSE-OGE)	163	Central Vermont Public Serv. Corp. (NYSE-CV)	100
FirstEnergy Corporation (NYSE-FE)	152	Pinnacle West Capital Corp. (NYSE-PNW)	100
UIL Holdings Corporation (NYSE-UIL)	141	IDACORP, Inc. (NYSE-IDA)	101
Cleco Corporation (NYSE-CNL)	140	Edison International (NYSE-EIX)	113
Maine & Maritimes Corporation (ASE-MAM)	136	Progress Energy Inc. (NYSE-PGN)	115
Otter Tail Corporation (NDQ-OTTR)	131	American Electric Power Co. (NYSE-AEP)	117

PRICE/EARNINGS MULTIPLE

HIGH		LOW	
Pinnacle West Capital Corp. (NYSE-PNW)	59.0	Central Vermont Public Serv. Corp. (NYSE-CV)	9.3
Maine & Maritimes Corporation (ASE-MAM)	36.6	American Electric Power Co. (NYSE-AEP)	11.3
Otter Tail Corporation (NDQ-OTTR)	27.8	Allegheny Energy, Inc. (NYSE-AYE)	11.8
Hawaiian Electric Industries, Inc. (NYSE-HE)	20.9	FirstEnergy Corporation (NYSE-FE)	11.9
PPL Corporation (NYSE-PPL)	20.4	DPL Inc.(NYSE-DPL)	12.6
Southern Company (NYSE-SO)	16.1	FPL Group, Inc. (NYSE-FPL)	12.6
Great Plains Energy Incorporated (NYSE-GXP)	16.0	Portland General Electric (NYSE-POR)	12.8
Westar Energy, Inc. (NYSE-WR)	14.6	Edison International (NYSE-EIX)	12.9
Cleco Corporation (NYSE-CNL)	14.5	IDACORP, Inc. (NYSE-IDA)	12.9
OGE Energy Corp. (NYSE-OGE)	13.5	UIL Holdings Corporation (NYSE-UIL)	13.2

RETURN ON BOOK VALUE OF COMMON EQUITY

HIGH		LOW	
DPL Inc.(NYSE-DPL)	24.8	Pinnacle West Capital Corp. (NYSE-PNW)	1.7
FPL Group, Inc. (NYSE-FPL)	14.3	Maine & Maritimes Corporation (ASE-MAM)	3.8
OGE Energy Corp. (NYSE-OGE)	12.6	Otter Tail Corporation (NDQ-OTTR)	4.6
FirstEnergy Corporation (NYSE-FE)	12.4	Great Plains Energy Incorporated (NYSE-GXP)	5.2
Hawaiian Electric Industries, Inc. (NYSE-HE)	11.6	Portland General Electric (NYSE-POR)	7.4
Central Vermont Public Serv. Corp. (NYSE-CV)	11.3	Westar Energy, Inc. (NYSE-WR)	7.9
Southern Company (NYSE-SO)	11.3	IDACORP, Inc. (NYSE-IDA)	8.2
American Electric Power Co. (NYSE-AEP)	10.7	Progress Energy Inc. (NYSE-PGN)	8.5
Cleco Corporation (NYSE-CNL)	10.7	Edison International (NYSE-EIX)	9.1
UIL Holdings Corporation (NYSE-UIL)	10.7	El Paso Electric Company (ASE-EE)	9.5

COMBINATION ELECTRIC & GAS COMPANIES

DIVIDEND YIELD

HIGH		LOW	
Empire District Electric Co. (NYSE-EDE)	7.0	AES Corporation (NYSE-AES)	0.0
Integrys Energy Group (NYSE-TEG)	7.0	MDU Resources Group, Inc. (NYSE-MDU)	2.8
Unitil Corporation (ASE-UTL)	6.9	Constellation Energy Group, Inc. (NYSE-CEG)	3.0
Pepco Holdings, Inc. (NYSE-POM)	6.8	SEMPRA Energy (NYSE-SRE)	3.0
NiSource Inc. (NYSE-NI)	6.6	Wisconsin Energy Corporation (NYSE-WEC)	3.0
Ameren Corporation (NYSE-AEE)	6.0	CMS Energy Corporation (NYSE-CMS)	3.4
Black Hills Corporation (NYSE-BKH)	5.9	NV Energy (NYSE-NVE)	3.7
CenterPoint Energy (NYSE-CNP)	5.9	Entergy Corporation (NYSE-ETR)	3.8
Duke Energy Corporation (NYSE-DUK)	5.9	UniSource Energy Corporation (NYSE-UNS)	3.8
Vectren Corporation (NYSE-VVC)	5.8	PG&E Corporation (NYSE-PCG)	3.9

MARKET/BOOK RATIO

HIGH		LOW	
Exelon Corporation (NYSE-EXC)	251	NiSource Inc. (NYSE-NI)	82
AES Corporation (NYSE-AES)	202	Pepco Holdings, Inc. (NYSE-POM)	82
Dominion Resources, Inc. (NYSE-D)	196	NV Energy (NYSE-NVE)	87
CenterPoint Energy (NYSE-CNP)	194	Black Hills Corporation (NYSE-BKH)	88
NSTAR (NYSE-NST)	188	Duke Energy Corporation (NYSE-DUK)	97
Public Service Enterprise Group (NYSE-PEG)	185	Integrys Energy Group (NYSE-TEG)	104
Entergy Corporation (NYSE-ETR)	184	Avista Corporation (NYSE-AVA)	106
MGE Energy, Inc. (NDQ-MGEE)	167	DTE Energy Company (NYSE-DTE)	106
MDU Resources Group, Inc. (NYSE-MDU)	166	Alliant Energy Corporation (NYSE-LNT)	112
PG&E Corporation (NYSE-PCG)	163	Unitil Corporation (ASE-UTL)	112

PRICE/EARNINGS MULTIPLE

HIGH		LOW	
Alliant Energy Corporation (NYSE-LNT)	28.2	Public Service Enterprise Group (NYSE-PEG)	11.0
Duke Energy Corporation (NYSE-DUK)	20.8	Exelon Corporation (NYSE-EXC)	11.2
CH Energy Group, Inc. (NYSE-CHG)	17.5	SEMPRA Energy (NYSE-SRE)	11.3
TECO Energy, Inc. (NYSE-TE)	17.2	SCANA Corporation (NYSE-SCG)	11.8
MGE Energy, Inc. (NDQ-MGEE)	16.9	DTE Energy Company (NYSE-DTE)	12.0
Vectren Corporation (NYSE-VVC)	16.6	PG&E Corporation (NYSE-PCG)	12.0
ALLETE, Inc. (NYSE-ALE)	16.2	CenterPoint Energy (NYSE-CNP)	12.1
NV Energy (NYSE-NVE)	15.5	CMS Energy Corporation (NYSE-CMS)	12.2
Empire District Electric Co. (NYSE-EDE)	15.3	Unitil Corporation (ASE-UTL)	12.2
Wisconsin Energy Corporation (NYSE-WEC)	14.6	Northeast Utilities (NYSE-NU)	12.6

RETURN ON BOOK VALUE OF COMMON EQUITY

HIGH		LOW	
Exelon Corporation (NYSE-EXC)	23.1	NiSource Inc. (NYSE-NI)	5.7
Public Service Enterprise Group (NYSE-PEG)	18.1	Pepco Holdings, Inc. (NYSE-POM)	6.2
UniSource Energy Corporation (NYSE-UNS)	16.7	CH Energy Group, Inc. (NYSE-CHG)	7.3
Dominion Resources, Inc. (NYSE-D)	15.1	Empire District Electric Co. (NYSE-EDE)	7.4
AES Corporation (NYSE-AES)	14.9	Ameren Corporation (NYSE-AEE)	7.9
CenterPoint Energy (NYSE-CNP)	14.9	NV Energy (NYSE-NVE)	8.1
PG&E Corporation (NYSE-PCG)	13.6	Avista Corporation (NYSE-AVA)	8.2
Entergy Corporation (NYSE-ETR)	13.4	Unitil Corporation (ASE-UTL)	8.2
SEMPRA Energy (NYSE-SRE)	11.5	Consolidated Edison, Inc. (NYSE-ED)	8.4
SCANA Corporation (NYSE-SCG)	11.2	Vectren Corporation (NYSE-VVC)	8.5

NATURAL GAS DIST. & INT. GAS COMPANIES

DIVIDEND YIELD

HIGH		LOW	
Energy, Incorporated (NDQ-EGAS)	6.2	Southwestern Energy Company (NYSE-SWN)	0.0
AGL Resources Inc. (NYSE-AGL)	5.0	El Paso Corporation (NYSE-EP)	0.4
Laclede Group, Inc. (NYSE-LG)	4.8	Energen Corporation (NYSE-EGN)	1.1
NICOR Inc. (NYSE-GAS)	4.7	Questar Corporation (NYSE-STR)	1.2
Atmos Energy Corporation (NYSE-ATO)	4.6	EQT Corporation (NYSE-EQT)	2.0
Delta Natural Gas Company (NDQ-DGAS)	4.6	Williams Companies, Inc. (NYSE-WMB)	2.1
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	4.6	National Fuel Gas Company (NYSE-NFG)	2.8
RGC Resources, Inc. (NDQ-RGCO)	4.6	Southern Union Company (NYSE-SUG)	2.9
WGL Holdings, Inc. (NYSE-WGL)	4.6	UGI Corporation (NYSE-UGI)	3.3
ONEOK, Inc. (NYSE-OKE)	4.2	South Jersey Industries, Inc. (NYSE-SJI)	3.4

MARKET/BOOK RATIO

HIGH		LOW	
El Paso Corporation (NYSE-EP)	338	Southern Union Company (NYSE-SUG)	106
EQT Corporation (NYSE-EQT)	269	Southwest Gas Corporation (NYSE-SWX)	114
National Fuel Gas Company (NYSE-NFG)	232	Energy, Incorporated (NDQ-EGAS)	121
Questar Corporation (NYSE-STR)	227	Atmos Energy Corporation (NYSE-ATO)	122
New Jersey Resources Corp. (NYSE-NJR)	210	Laclede Group, Inc. (NYSE-LG)	134
South Jersey Industries, Inc. (NYSE-SJI)	201	RGC Resources, Inc. (NDQ-RGCO)	136
ONEOK, Inc. (NYSE-OKE)	200	WGL Holdings, Inc. (NYSE-WGL)	143
Northwest Natural Gas Co. (NYSE-NWN)	183	Williams Companies, Inc. (NYSE-WMB)	147
NICOR Inc. (NYSE-GAS)	181	AGL Resources Inc. (NYSE-AGL)	155
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	180	Delta Natural Gas Company (NDQ-DGAS)	162

PRICE/EARNINGS MULTIPLE

HIGH		LOW	
Williams Companies, Inc. (NYSE-WMB)	51.7	UGI Corporation (NYSE-UGI)	10.1
South Jersey Industries, Inc. (NYSE-SJI)	39.2	Laclede Group, Inc. (NYSE-LG)	10.7
National Fuel Gas Company (NYSE-NFG)	37.6	Energy, Incorporated (NDQ-EGAS)	11.6
EQT Corporation (NYSE-EQT)	28.1	Southern Union Company (NYSE-SUG)	11.8
AGL Resources Inc. (NYSE-AGL)	22.4	Energen Corporation (NYSE-EGN)	12.4
Delta Natural Gas Company (NDQ-DGAS)	21.1	NICOR Inc. (NYSE-GAS)	12.5
Questar Corporation (NYSE-STR)	20.2	WGL Holdings, Inc. (NYSE-WGL)	13.4
Piedmont Natural Gas Co., Inc. (NYSE-PNY)	20.0	RGC Resources, Inc. (NDQ-RGCO)	13.5
Southwest Gas Corporation (NYSE-SWX)	16.6	New Jersey Resources Corp. (NYSE-NJR)	13.7
Northwest Natural Gas Co. (NYSE-NWN)	15.3	Atmos Energy Corporation (NYSE-ATO)	13.9

RETURN ON BOOK VALUE OF COMMON EQUITY

HIGH		LOW	
UGI Corporation (NYSE-UGI)	16.3	Williams Companies, Inc. (NYSE-WMB)	3.6
New Jersey Resources Corp. (NYSE-NJR)	16.2	EQT Corporation (NYSE-EQT)	7.0
NICOR Inc. (NYSE-GAS)	14.8	National Fuel Gas Company (NYSE-NFG)	7.0
Energen Corporation (NYSE-EGN)	14.5	Southwest Gas Corporation (NYSE-SWX)	7.0
ONEOK, Inc. (NYSE-OKE)	14.0	Delta Natural Gas Company (NDQ-DGAS)	7.7
Laclede Group, Inc. (NYSE-LG)	13.1	Atmos Energy Corporation (NYSE-ATO)	9.0
AGL Resources Inc. (NYSE-AGL)	12.6	Piedmont Natural Gas Co., Inc. (NYSE-PNY)	9.2
Northwest Natural Gas Co. (NYSE-NWN)	12.3	Southern Union Company (NYSE-SUG)	9.3
Questar Corporation (NYSE-STR)	11.4	RGC Resources, Inc. (NDQ-RGCO)	10.2
Chesapeake Utilities Corporation (NYSE-CPK)	11.2	Energy, Incorporated (NDQ-EGAS)	10.5

TELEPHONE COMPANIES

DIVIDEND YIELD

HIGH		LOW	
Frontier Communications Corp (NYSE FTR)	13.7	General Communication, Inc. (NDQ-GNCMA)	0.0
Alaska Comm. Systems Group (NDQ-ALSK)	12.9	PAETEC Holdings Corp. (NDQ-PAET)	0.0
Windstream Corporation (NYSE-WIN)	10.0	Telephone & Data Systems, Inc. (ASE-TDS)	1.4
Qwest Communications International (NYSE-Q)	8.5	BCE, Inc. (NYSE-BCE)	5.8
CenturyTel, Inc. (NYSE-CTL)	8.1	AT&T Inc. (NYSE-T)	6.2

MARKET/BOOK RATIO

HIGH		LOW
PAETEC Holdings Corp. (NDQ-PAET)	292	Telephone companies with NMs (Not Meaningful Figures)
Verizon Communications (NYSE-VZ)	200	have been excluded from the Market/Book Ratios rankings.
BCE, Inc. (NYSE-BCE)	166	
AT&T Inc. (NYSE-T)	155	
General Communication, Inc. (NDQ-GNCMA)	117	

PRICE/EARNINGS MULTIPLE

HIGH		LOW	
General Communication, Inc. (NDQ-GNCMA)	70.6	Cincinnati Bell Inc. (NYSE- CBB)	6.2
BCE, Inc. (NYSE-BCE)	22.9	Qwest Communications International (NYSE-Q)	8.8
Frontier Communications Corp (NYSE FTR)	14.9	CenturyTel, Inc. (NYSE-CTL)	12.3
Verizon Communications (NYSE-VZ)	14.8	Windstream Corporation (NYSE-WIN)	12.7
Alaska Comm. Systems Group (NDQ-ALSK)	14.1	AT&T Inc. (NYSE-T)	13.0

RETURN ON BOOK VALUE OF COMMON EQUITY

HIGH		LOW	
Verizon Communications (NYSE-VZ)	12.4	Telephone & Data Systems, Inc. (ASE-TDS)	0.4
AT&T Inc. (NYSE-T)	11.7	General Communication, Inc. (NDQ-GNCMA)	0.5
BCE, Inc. (NYSE-BCE)	6.2	CenturyTel, Inc. (NYSE-CTL)	6.1

WATER COMPANIES

DIVIDEND YIELD

HIGH		LOW	
Artesian Resources Corp. (NDQ-ARTNA)	4.4	SJW Corporation (NYSE-SJW)	2.9
Middlesex Water Company (NDQ-MSEX)	4.4	Pennichuck Corporation (NDQ-PNNW)	3.0
American Water Works Co., Inc. (NYSE-AWK)	4.1	American States Water Co. (NYSE-AWR)	3.1
Connecticut Water Service, Inc. (NDQ-CTWS)	3.9	Southwest Water Company (NDQ-SWWC)	3.2

MARKET/BOOK RATIO

HIGH		LOW	
Pennichuck Corporation (NDQ-PNNW)	211.4	American Water Works Co., Inc. (NYSE-AWK)	89.5
York Water Company (NDQ-YORW)	210.6	Southwest Water Company (NDQ-SWWC)	128.3
Aqua America, Inc. (NYSE-WTR)	203.6	Artesian Resources Corp. (NDQ-ARTNA)	142.3
Connecticut Water Service, Inc. (NDQ-CTWS)	180.2	Middlesex Water Company (NDQ-MSEX)	160.9

PRICE/EARNINGS MULTIPLE

HIGH		LOW	
Pennichuck Corporation (NDQ-PNNW)	38.2	American Water Works Co., Inc. (NYSE-AWK)	3.7
SJW Corporation (NYSE-SJW)	25.7	Connecticut Water Service, Inc. (NDQ-CTWS)	17.8
Middlesex Water Company (NDQ-MSEX)	22.3	Artesian Resources Corp. (NDQ-ARTNA)	18.2
York Water Company (NDQ-YORW)	21.7	California Water Service Group (NYSE-CWT)	18.2

RETURN ON BOOK VALUE OF COMMON EQUITY

HIGH		LOW	
Connecticut Water Service, Inc. (NDQ-CTWS)	13.9	Pennichuck Corporation (NDQ-PNNW)	5.4
California Water Service Group (NYSE-CWT)	12.3	Middlesex Water Company (NDQ-MSEX)	7.2
Aqua America, Inc. (NYSE-WTR)	9.8	Artesian Resources Corp. (NDQ-ARTNA)	7.9
York Water Company (NDQ-YORW)	9.8	American States Water Co. (NYSE-AWR)	8.6

BERNSTEIN RESEARCH

U.S. Utilities: The Drivers of Returns, 1984-2004

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Overview

Over the last 20 years, regulated U.S. electric utilities have achieved remarkably low average EPS growth: 1.1% annually for our sample of 13 continuously regulated electric utilities. The growth of the group's aggregate net income was higher (3.8% per annum), tracking the growth in regulated assets, but was diluted by repeated share issuances. At 1% annual EPS growth, the industry's average payout ratio of 70% and current average P/E multiple of 16x imply prospective returns on regulated utility stocks of 5.4% per annum. Investors seeking higher returns are urged to focus on (i) stocks combining low P/E multiples (14-15x) and high sustainable dividend payout ratios (70-75%), or (ii) well-capitalized utilities with minimal risk of equity dilution and rapid growth in rate base, such as Edison International (rated outperform, target price $44).

With 16 states having deregulated the generation of electricity, the category "utility" no longer defines a class of stocks with uniform commercial or investment characteristics. Rather, while regulated utilities continue to display the sector's traditionally low volatility of returns, since 2002 deregulated utilities have demonstrated a *higher* volatility of returns than the broader market. This marked difference in the betas of regulated and deregulated utility stocks persuades us that including both categories of stocks in a single asset class is no longer appropriate. This analysis, therefore, will focus solely on regulated utilities.

Over the past 20 years, our sample of 13 regulated utilities experienced a compound annual growth rate (CAGR) in aggregate earnings of 3.8%. In exploring the drivers of earnings growth, we found that the aggregate earnings of our sample group could be predicted as a linear function of total invested capital with an R-squared of 90%. In turn, the best predictor of invested capital appears to be demand growth; a correlation analysis of MWh sold with total invested capital also produces an R-squared of 90%.

Over the same period, however, the compound annual growth in earnings per share for our sample group was only 1.1%. This marked dilution of earnings on a per-share basis reflects the deleveraging of utilities' balance sheets over the last 20 years. In 1984, our 13 sample utilities had an aggregate equity-to-total capital ratio of 32%; by 2004, equity had increased to 38% of total capital. Thus, while strong growth in invested capital drove a commensurate increase in aggregate earnings over the last 20 years, the benefit to EPS was largely diluted away through repeated issues of stock.

If demand growth, forecast at 2% per annum, continues to drive the expansion of invested capital and thus growth in regulated earnings, regulated utilities, in the absence of further equity dilution, can be expected to grow EPS at 2% annually. Given the industry average dividend payout ratio of 70% and P/E multiple of 16x, expected returns are thus in the area of 6.4%. Investors seeking higher returns must find stocks valued significantly below or growing significantly above the industry average. Thus, utilities projected to grow 2% annually while sustaining a dividend payout ratio of 70% will realize returns in excess of 7% only if their earnings multiples are 14x or below. Alternatively, utilities valued at 16 times earnings must realize long-term earnings growth of 3% or more, while maintaining dividend payout ratios of 65% or higher, to offer equity investors returns in excess of 7%.

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Defining Regulated Utilities

With 16 states having deregulated the generation of electricity to various degrees, the category "utility" no longer defines an asset class with uniform investment characteristics. Our research indicates that while regulated utilities continue to display an investment characteristic long associated with the sector — i.e., much lower volatility than the equity market generally — deregulated utilities since 2002 have demonstrated a *higher* volatility of returns than the broader market. It is this marked difference in the betas of regulated and deregulated utility stocks that persuades us that including both categories of stocks in a single asset class is no longer appropriate. Referring to regulated and deregulated power companies as "utilities," with the term's historical connotation of steady income and price stability, is misleading, in our view. In the first chapter of this *Whitebook*, therefore, we will distinguish between the two categories of stocks, and in the remainder of our discussion will focus on regulated utilities only.

A Modified Capital Asset Pricing Model

We have applied regression analysis of market data from the last three and a half years to determine the correlation of monthly utility returns in excess of market returns with two independent variables: the equity market risk premium (monthly equity market returns in excess of Treasury bond yields) and the credit risk premium (the excess of corporate bond yields over Treasury bond yields). This allowed us to derive a modified capital asset pricing model (CAPM) that predicts the excess return of utility stocks as a function of the market premium and credit spread:

$$R - Rf = \beta(Rm - Rf) + \gamma DEF$$

Where:

R = total returns for a market-cap-weighted portfolio of utilities;
Rf = the risk-free rate as measured by the yield on the one-month Treasury bill;
Rm = total market return; and
DEF = the credit or default risk factor, as measured by the difference between the yield on the Moody's Corporate Bond Index and the 10-year Treasury bond.

Since monthly utility returns and market returns both exhibit a great deal of variability, we use trailing-six-month averages for all of the variables.

Diverging Betas for Regulated and Unregulated Utilities

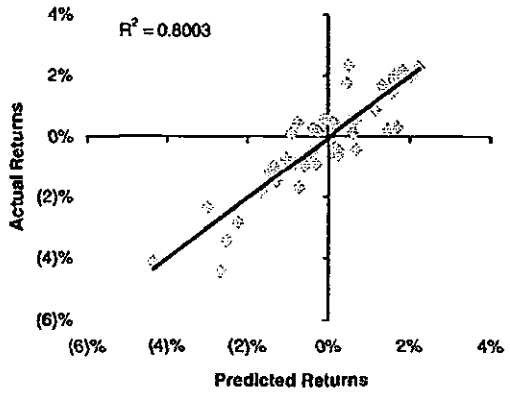
In the second stage of our analysis, we divided the universe of utility stocks into two groups, regulated and deregulated, and again used regression analysis to derive modified CAPM equations specific to each of the two groups. We defined regulated utilities as those firms with more than 70% of their operations subject to rate regulation on a cost-of-service basis and deregulated utilities as those firms with less than 70% of their operations subject to regulation (or, put another way, with more than 30% of their operations conducted in unregulated markets). In determining the specific category for each utility, we followed the classification system developed by the Cambridge Energy Research Associates (CERA). This research institute divides the utility sector into the following five groups:

Utility – at least 90% of the business is regulated;
Utility Plus – 70-90% of the business is regulated;
Hybrid – utility and non-utility businesses each account for at least 30% of the business;
Competitive – at least 70% of the business is deregulated; and
Diversified – less than 50% of the business is in energy industries.

For companies not included in CERA's list, we determined the utility's classification based on the same criteria. According to the definitions above, 31% of publicly traded U.S. electric utilities are predominantly regulated, 30% are "utility plus" companies with 10-30% of their business being competitive, 25% are hybrids with 30% or more of their business competitive, 11% are predominantly competitive, and 3% are diversified with less than 50% of the business in energy industries. In testing our modified CAPM, we defined regulated utilities as those in the "utility" and "utility plus" categories. Deregulated utilities consist of all those designated as hybrid, competitive or diversified.

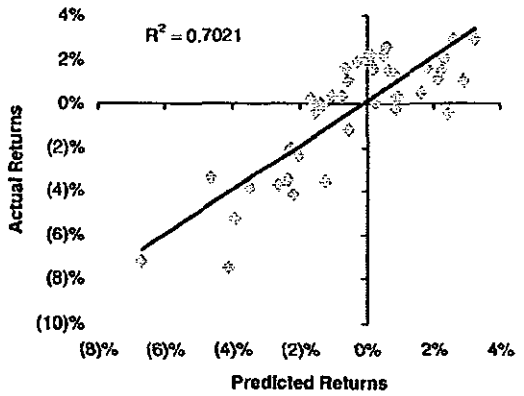
Our modified CAPM predicts excess returns by the regulated utilities since 2002 with considerable accuracy, explaining 80% of the variance in excess returns (see Exhibit 1). The model is slightly less effective for deregulated utilities but still explains 69% of the variance in returns (see Exhibit 2).

Exhibit 1 Regulated Utilities: Actual vs. Predicted Returns, 2002-05



Source: FactSet, Bloomberg L.P. and Bernstein analysis.

Exhibit 2 Deregulated Utilities: Actual vs. Predicted Returns, 2002-05



Source: FactSet, Bloomberg L.P. and Bernstein analysis.

Importantly, we found that the coefficients for the two variables in our modified CAPM differ significantly between regulated and deregulated utilities (see Exhibit 3). The coefficient of the market risk premium, which is essentially a beta adjusted for credit risk, is 0.72 for regulated utilities, while for deregulated utilities it was 1.08. Regulated utilities are thus less sensitive to the market premium than equities generally, while deregulated utilities are slightly more sensitive than the broader market. Similarly, for regulated utilities, the coefficient of the credit risk premium is 3.35, while for deregulated utilities it is 4.15. Regulated utilities are thus less sensitive to the market's pricing of credit risk than are deregulated utilities.

Exhibit 3 Modified CAPM Coefficients per Regulated vs. Deregulated Utilities

	Regulated	Deregulated
Market Premium	0.72	1.08
t-stat	12.61	9.49
Credit Risk	3.35	4.15
t-stat	4.63	2.87

Source: FactSet, Bloomberg L.P. and Bernstein analysis.

Conclusion

These results show that while regulated utilities continue to display an investment characteristic long associated with the sector — i.e., much lower volatility than the equity market generally — deregulated utilities since 2002 have demonstrated a higher volatility of returns than the broader market. The marked difference in betas between regulated and deregulated utility stocks suggests that their inclusion in the same asset class is no longer appropriate. The remainder of our analysis, therefore, focuses exclusively on the category of regulated utilities.

Utility Earnings Within a Regulated Framework

Historical Review of Regulated Utility Performance

Historically, electric utilities in the United States have been regulated monopolies, restricted to the supply of one or at most two products (electricity and gas) within a defined geographic area or service territory. This regulatory paradigm precluded growth through market share gains, new product introduction or geographic expansion. Moreover, as well-run utilities generally enjoyed a return on capital equal to the maximum allowed by their regulators, improvements in the operating performance translated into reductions in rates rather than increased returns to investors. Growth could only come, therefore, through increases in invested capital. These in turn were constrained by the growth in power demand in the utility's service territory.

A regulated utility's accumulated stock of invested capital, or rate base, is the primary determinant of its earnings. Under rate regulation based on cost of service, a utility's allowed revenues are a function of (i) the operating costs incurred by a utility in providing electric service (i.e., fuel, purchased power, operation and maintenance expense, and general and administrative expense); (ii) the capital costs incurred by the utility through its investment in regulated rate base (i.e., depreciation expense and interest on debt); and (iii) the utility's allowed return on equity. Because rates are set at a level designed to generate a revenue stream sufficient to recover both operating and capital costs, the earnings of regulated utilities have historically been highly stable, and can be expressed by the equation:

Net Income = (Allowed ROE x Equity)/(Total Capital x Rate Base)

As we will see below, regulated returns on invested capital have been relatively stable over the last 20 years, with the result that utilities' regulated earnings have tended to grow in tandem with rate base. Growth in rate base, in turn, has tracked growth in power demand, which over the last 20 years has averaged 2.6% per annum. Over this period, U.S. utilities' regulated returns on equity have tended to fall in the range of 10.75% to 13.00%. The combination of such high rates of return on equity with low rates of demand growth — and thus limited opportunities for investment in rate base — has been reflected in high dividend payout ratios (approximately 75%) and correspondingly low rates of reinvestment. This, in turn, has defined the financial profile of utility stocks as high-yielding, low-growth investments with very stable annual returns.

More than any other category of stock, therefore, regulated utilities have lent themselves to valuation by the application of the Gordon dividend growth model:

Price = (EPS x dividend payout ratio)/(discount rate – EPS growth rate)

Dividing through by EPS, we get:

P/E = dividend payout ratio/(discount rate – EPS growth rate)

We will analyze the historical financial performance of a sample of regulated electric utilities to determine appropriate values for the key variables in the P/E equation: payout ratio, discount rate and rate of dividend growth. These values will then be compared with those implicit in the current valuation of regulated utilities to estimate the likely future returns on shareholders' investments.

Sample Selection

Exhibit 4 presents a list of U.S. electric utilities whose power generation assets remain subject to rate regulation on a cost-of-service basis. Exhibit 5 presents a subset of these utilities that we have used as a sample group for purposes of our historical statistical analysis. The smaller sample in Exhibit 5 excludes companies that experienced abnormal shocks to their earnings from 1984 to 2004. (For example, the failed deregulation effort in California caused tremendous earnings volatility for companies such as Edison International, Pacific Gas and Electric, and Sierra Pacific Resources.) To reflect the normal historical performance of fully regulated utilities in the absence of such shocks, we excluded companies that experienced a volatility in year-on-year EPS growth greater than ±60%, as measured by the standard deviation of EPS growth. The exclusion of these companies considerably smoothes the historical series of aggregate earnings and weighted average earnings per share, as can be seen in Exhibits 6 through 9.

Exhibit 4 Regulated U.S. Electric Utilities: Market Caps as of December 31, 2004 ($ million)

SO	$24,865
FPL	13,917
PCG	13,057
PGN	11,174
SCG	4,449
MDU	3,151
TE	3,066
PSD	2,467
OGE	2,386
HE	2,352
PNM	1,529
IDA	1,291
SRP	1,233
BKH	1,174
ALE	1,091
CNL	1,005
ILA	892
AVA	857
OTTR	740
MGEE	735
EDE	583
GMP	148
FPU	76
Total	$92,241

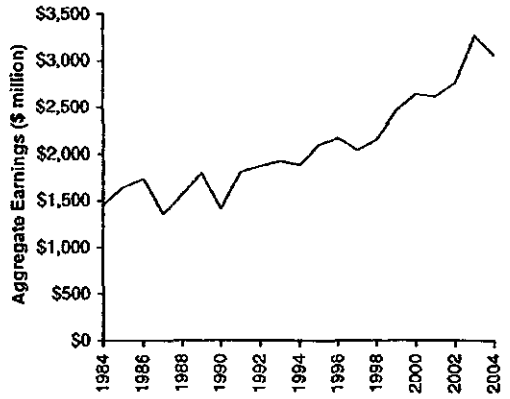
Source: FactSet.

Exhibit 5 Sample Group of Regulated Utilities: Market Caps as of December 31, 2004 ($ million)

SO	$24,865
PGN	11,174
MDU	3,151
PSD	2,467
OGE	2,386
HE	2,352
IDA	1,291
BKH	1,174
ALE	1,091
OTTR	740
MGEE	735
EDE	583
FPU	76
Total	$52,088

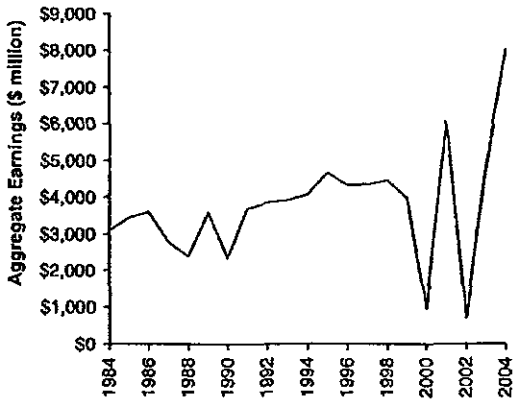
Source: FactSet.

Exhibit 6 Aggregate Earnings of Sample Group



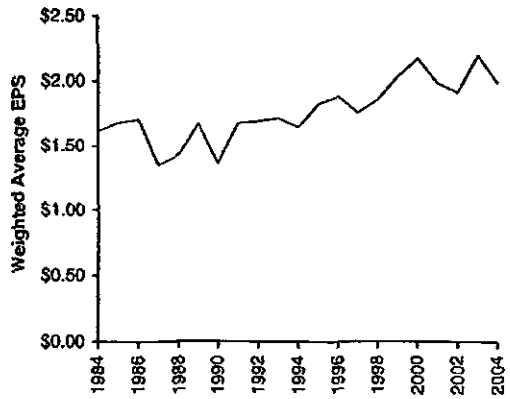
Source: FactSet and Bernstein analysis.

Exhibit 7 Aggregate Earnings of All Regulated Utilities



Source: FactSet and Bernstein analysis.

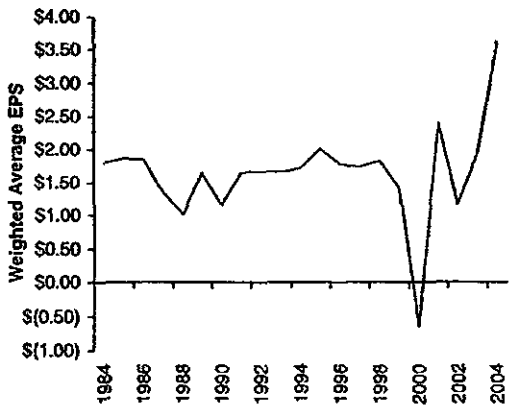
Exhibit 8 Weighted Average EPS of Sample Group[1]



1 Weighted by share of aggregate market cap in 1984.

Source: FactSet and Bernstein analysis.

Exhibit 9 Weighted Average EPS of All Regulated Utilities[1]



1 Weighted by share of aggregate market cap in 1984.

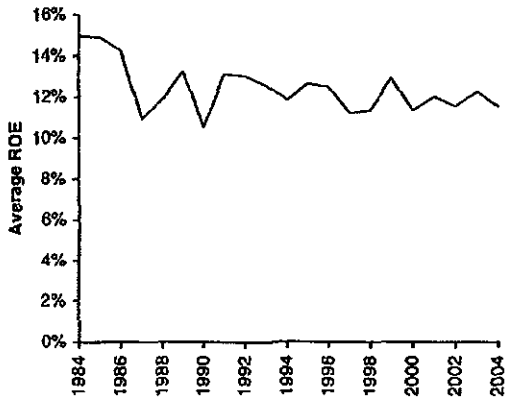
Source: FactSet and Bernstein analysis.

Determinants of Earnings Growth

Over the past 20 years, our sample of 13 regulated utilities experienced a compound annual growth rate in aggregate earnings of 3.8%. Over the same period, however, we estimate the compound annual growth in earnings per share for the sample group at 1.1%.[1] Below, we discuss the historical drivers of earnings growth at our sample of regulated utilities, as well as the reasons for EPS growth to lag behind that of aggregate earnings.

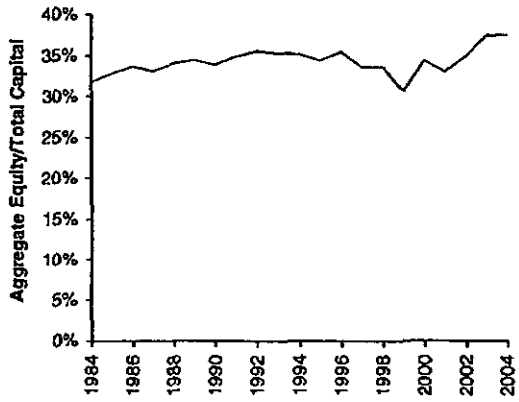
Regulated returns on equity and allowed ratios of equity to total capital have moved in opposite directions over the last 20 years (see Exhibits 10 and 11). Thus, the average ROE of the 13 regulated utilities in our sample declined from 15.0% in 1984 to 11.5% in 2004, while the average ratio of equity to total capital increased from 32% to 38%. The product of the two, representing the ratio of net income to total capital, fell from 4.8% in 1984 to 4.3% in 2004. With return on invested capital falling, it is clear that growth in rate base has been the primary driver of earnings growth at our sample of 13 regulated utilities over the last 20 years.

Exhibit 10 Aggregate ROE, 1984-2004



Source: FactSet and Bernstein analysis.

Exhibit 11 Aggregate Equity to Total Capital Ratio, 1984-2004



Source: FactSet and Bernstein analysis.

To estimate the aggregate rate base of the utilities of our sample group, we have used as a proxy the total invested capital of these companies as presented in their U.S. GAAP financial statements. Exhibit 12 graphs the tendency for the aggregate earnings of our sample group to track the growth in total capital invested. Exhibit 13 shows the results of a correlation analysis between the two variables at our sample of 13 regulated utilities over the last 20 years. As can be seen there, the aggregate earnings of our sample group can be predicted as a linear function of total invested capital with an R-squared of 90%.

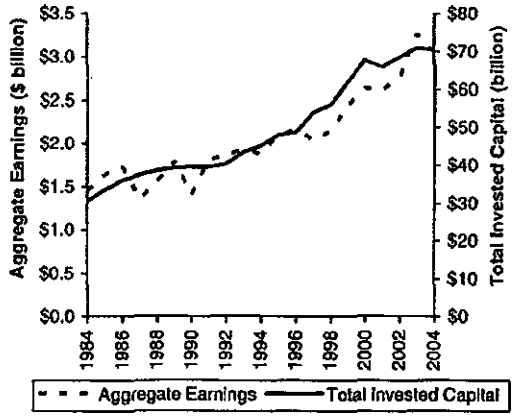
While the expansion of rate base has been the primary driver of earnings growth at our sample of regulated utilities, rate base in turn has tracked the increase in power demand. Exhibit 14 compares the growth in total invested capital of the sample group with the growth in power demand and the consumer price index over the last 20 years. Statistically, the

1 To estimate the rate of EPS growth for the sample group over the last 20 years, we calculated a weighted average of the EPS of each of the 13 sample companies, with each company's EPS weighted by that company's share of the aggregate market capitalization of the sample in 1984:

$$\text{Aggregate EPS} = \sum_{i=1}^{13} \text{EPS of Company } i \times \frac{\text{1984 Market Capitalization of Company } i}{\text{Total Market Capitalization of all Sample Utilities}}$$

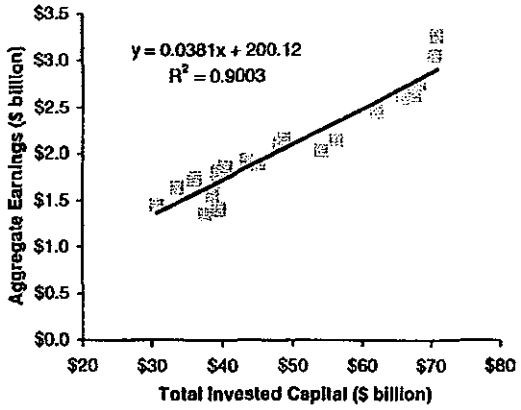
best predictor of invested capital appears to be demand growth; as can be seen in Exhibit 15, a correlation analysis of MWh sold with total invested capital produces an R-squared of 90%. Adding the Consumer Price Index as a second variable in the correlation analysis raises the R-squared even further, but the explanatory power of the CPI variable is dwarfed by that of MWh sales.

Exhibit 12 Trends In Aggregate Earnings and Total Invested Capital for Our Sample of 13 Regulated Utilities, 1984-2004



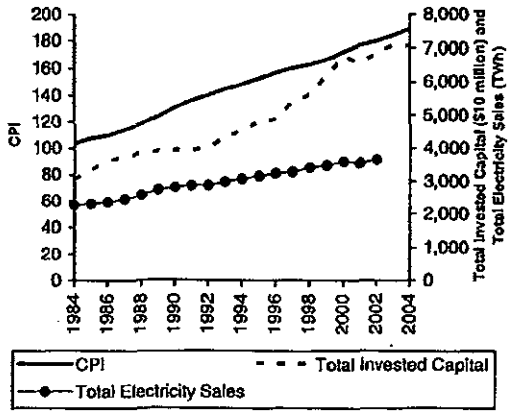
Source: FactSet and Bernstein analysis.

Exhibit 13 Relationship Between Aggregate Earnings and Total Invested Capital for Our Sample of 13 Regulated Utilities, 1984-2004



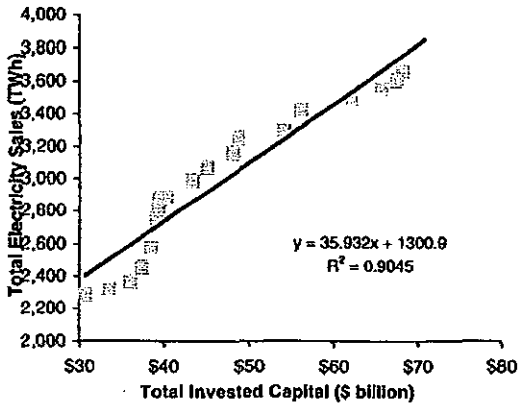
Source: FactSet and Bernstein analysis.

Exhibit 14 Relationship Between Total Invested Capital, Load Growth and Consumer Price Index



Source: FactSet and Bernstein analysis.

Exhibit 15 TWh Sales vs. Total Invested Capital, 1984-2004



Source: FactSet and Bernstein analysis.

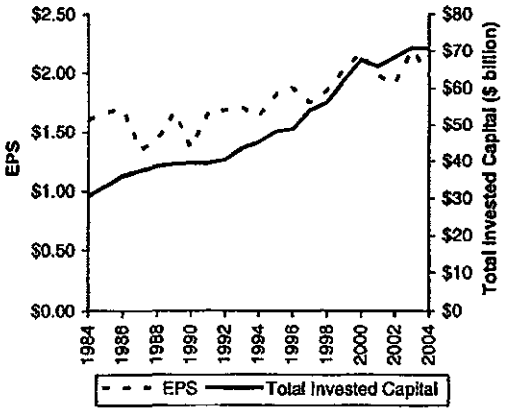
That invested capital should show a higher degree of correlation with MWh of electricity demand than with the aggregate price level points to an important fact of regulated utility economics: the nominal value of utility rate base, and thus of allowed earnings, has no direct link to inflation. In the

United States, the value of historical investment in rate base is not indexed to increases in the price level. If the allowed ROE and equity-to-capital ratios of regulated utilities maintain their historical stability in the future, therefore, the rate of growth in regulated utility earnings will be driven primarily by the expansion of rate base, as incremental capital investments are made to supply increases in power demand. The North American Electric Reliability Council (NERC) forecasts the rate of growth in U.S. electricity demand at 2.0% per annum over the next 10 years.

Determinants of EPS Growth

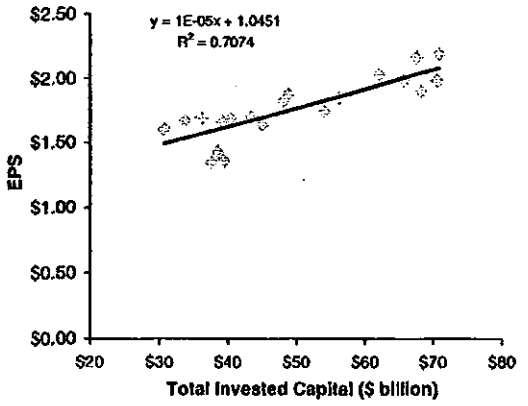
As noted above, EPS growth at our sample of regulated utilities has averaged 1.1% per year over the last 20 years, significantly lagging the 3.8% annual growth in aggregate earnings. The strong tendency for earnings to track total capital invested (illustrated in Exhibit 12) is considerably weakened, therefore, when earnings are expressed on a per-share basis (compare Exhibit 16). Statistically, the weaker link between EPS and invested capital is captured in the correlation analysis in Exhibit 17, where invested capital is found to predict EPS with an R-squared of 71%, in comparison with that in Exhibit 13, where invested capital predicts aggregate earnings with an R-squared of 90%.

Exhibit 16 Trends in EPS and Total Invested Capital for Our Sample of 13 Regulated Utilities, 1984-2004



Source: FactSet and Bernstein analysis.

Exhibit 17 Relationship Between EPS and Total Invested Capital for Our Sample of 13 Regulated Utilities, 1984-2004



Source: FactSet and Bernstein analysis.

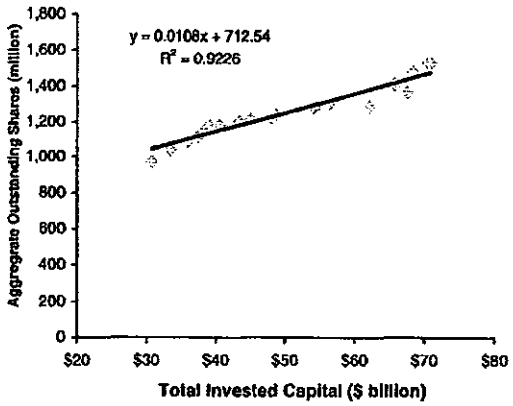
Our analysis suggests two possible explanations for why EPS growth has fallen so far behind aggregate earnings growth over the last 20 years. First, we find a very strong correlation historically between share count and invested capital. As can be seen in Exhibit 18, the shares outstanding of our sample group can be predicted as a linear function of total invested capital with an R-squared of 92%. Thus, while strong growth in invested capital drove a roughly commensurate increase in aggregate earnings over the last 20 years, the benefit to EPS was largely diluted away through repeated issues of stock.

The tendency for share count to rise in direct relation to invested capital could reflect the high dividend payout ratio of regulated utilities, which causes them to rely on external sources of capital to fund growth in rate base. Over the last 20 years, our sample group of regulated utilities paid out

76% of their aggregate earnings as dividends, retaining less than a quarter. In round numbers, the aggregate earnings of the sample utilities over the period totaled $44 billion, of which $34 billion were paid out as dividends and only $10 billion were retained. The increase in the sample group's total invested capital over this period, by contrast, was some $40 billion. The sample utilities' retained earnings over 1984-2004 were thus equivalent to only 25% of the growth in their total invested capital. At the beginning of the period, by contrast, the sample group had equity equivalent to 32% of total capital invested; without recourse to external sources of equity, therefore, funding the growth of invested capital would have resulted in a significant increase in the utilities' leverage.

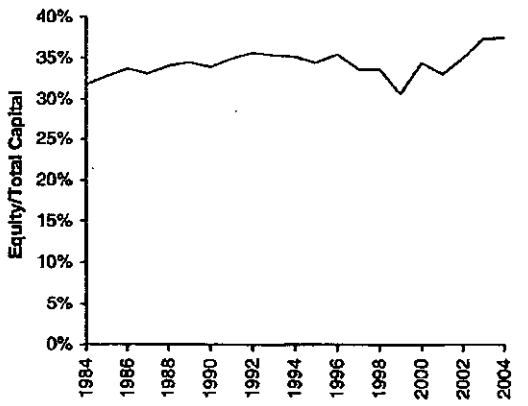
The second contributor to the increase in share count among our sample utilities has been their tendency to reduce leverage over the last 20 years (see Exhibit 19). In 1984, our 13 sample utilities had an aggregate ratio of equity to total capital of 32%; by 2004, they had raised equity to 38% of total capital. To maintain and indeed increase their equity-to-capital ratio, the sample utilities found it necessary to raise some $6 billion in equity from external sources. This sum was equal to 66% of the book value of the sample utilities' equity at the beginning of the period; the increase in shares outstanding of the sample group from 1984 to 2004 was comparable, at 57%.

Exhibit 18 Relationship Between Shares Outstanding and Invested Capital, 1984-2004



Source: FactSet and Bernstein analysis.

Exhibit 19 Ratio of Equity to Total Capital for Our Sample of 13 Regulated Utilities, 1984-2004



Source: FactSet and Bernstein analysis.

It would appear, therefore, that the much slower rate of EPS growth among our sample utilities, as compared with the growth in the aggregate earnings of the group over 1984-2004, can be attributed to the interaction of (i) a very high dividend payout ratio; (ii) a significant program of capital expenditure; (iii) the desire to maintain a minimum ratio of equity to total capital, necessitating the periodic issuance of stock to augment the equity funds available from retained earnings; and (iv) a tendency to increase the ratio of equity to total capital over time.

Conclusion

Over the past 20 years, our sample of 13 regulated utilities experienced a compound annual growth rate in aggregate earnings of 3.8%. In exploring the drivers of earnings growth, we found that the aggregate earnings of our sample group could be predicted as a linear function of total invested capital, with an R-squared of 90%. In turn, the best predictor of invested capital appears to be demand growth; a correlation analysis of MWh sold with total invested capital also produces an R-squared of 90%.

Over the same period, however, the compound annual growth in earnings per share for our sample group was only 1.1%. Our analysis suggests two possible explanations for why EPS growth has fallen so far behind aggregate earnings growth over the last 20 years. First, we find a very strong correlation historically between share count and invested capital, possibly reflecting the high dividend payout of regulated utilities and, thus, the limited retained earnings available to fund capital investment. The second contributor to the increase in share count among our sample utilities has been their tendency to reduce leverage over the last 20 years. In 1984, our 13 sample utilities had an aggregate ratio of equity to total capital of 32%; by 2004, they had raised equity to 38% of total capital. Thus, while strong growth in invested capital drove a roughly commensurate increase in aggregate earnings over the last 20 years, the benefit to EPS was largely diluted away through repeated issues of stock.

Impact of Future Rate Cases on Allowed ROE and Earnings

Relationship Between Interest Rates and Allowed ROE

In the preceding chapter, we noted that the earnings of regulated utilities can be expressed by the equation:

Net Income = (Allowed ROE x Equity)/(Total Capital x Rate Base)

In analyzing these drivers of regulated utilities' earnings, we found that over the last 20 years, regulated returns on equity and allowed ratios of equity to total capital have moved in opposite directions, such that return on rate base was little changed over the period. Consequently, we found growth in rate base to be the strongest predictor of earnings growth. This chapter will focus more deeply on the determinants of ROE and equity to total capital, as well as the relation of these two earnings drivers to each other.

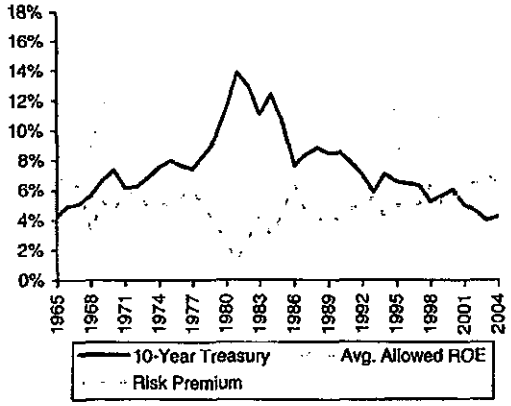
While one would expect allowed returns on equity to track movements in the long-term Treasury rates fairly closely, our research indicates that over the past 40 years, the annual average of allowed rates of return granted in rate cases to regulated electric utilities in the United States has exhibited far greater stability than 10-year U.S. Treasury yields (see Exhibit 20). Over this period, the standard deviation of allowed ROEs granted in utility rate cases has been only 1.5 percentage points (pp), versus 2.4 pp for 10-year Treasuries. The coefficient of variation — the standard deviation as a fraction of the mean value — was also smaller for allowed ROEs than for Treasury yields over the period: the coefficient of variation was 12% in the case of allowed ROEs and 33% in the case of 10-year Treasury yields.

A regression analysis of ROEs allowed by utility regulators in rate cases decided over the last 40 years, against then-prevailing 10-year Treasury yields, results in the following equation:

Allowed ROE = 0.56 x 10-Year Treasury Yield + 0.08

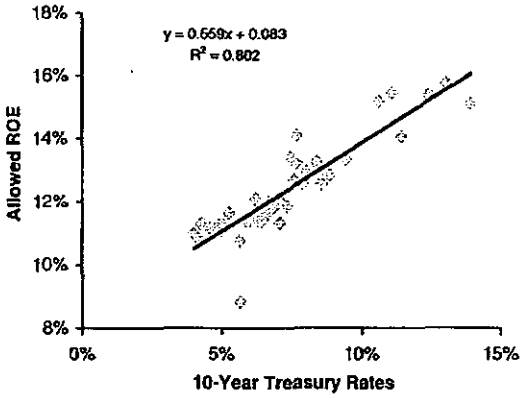
The regression has an R-squared of 80% and a t-statistic of 8.28, implying that it offers a statistically significant explanation of 80% of the movement in allowed ROEs. Based on the experience of the last 40 years, therefore, a 100 basis point (bp) change in the 10-year Treasury yield can be expected to have a 56 bp impact on allowed ROEs granted in utility rate cases (see Exhibit 21).

Exhibit 20 10-Year Treasury Yields and Allowed ROEs



Source: FactSet, Regulatory Research Associates (RRA) and Bernstein analysis.

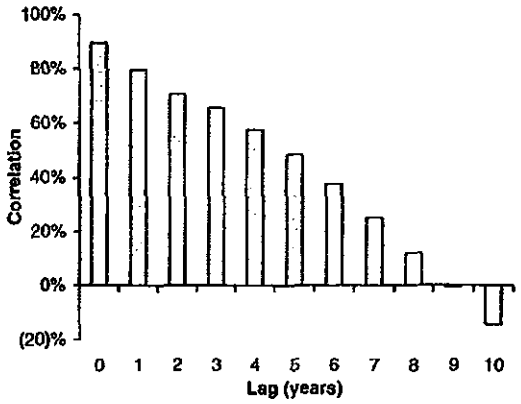
Exhibit 21 Interest Rates and Allowed ROEs



Source: FactSet, RRA and Bernstein analysis.

While changes in interest rates are not fully reflected in changes in allowed ROE, the historical evidence suggests that allowed ROEs are set in utility rate cases in light of currently prevailing, rather than historical, Treasury yields. This is illustrated in Exhibit 22, which shows the correlation between the average of allowed ROEs in a particular year and the yield on the 10-year Treasury over the last 10 years. Allowed ROEs show the highest correlation with Treasury yields in the year of the rate decision, and steadily weaker correlations with Treasury yields in preceding years.

Exhibit 22 Correlation Between 10-Year Treasury Yield and Allowed ROE Lagged to 10 Years



Source: FactSet, RRA and Bernstein analysis.

The greater stability of allowed ROEs relative to underlying changes in U.S. Treasury yields likely reflects the efforts of regulators to limit volatility in electricity rates while offering stable long-run returns on utility capital. Thus, regulators may look beyond current peaks or troughs in Treasury

yields when making their rate decisions, attenuating the impact of market movements in Treasury yields on allowed ROEs. In estimating utilities' cost of equity, moreover, regulators tend to add to prevailing Treasury yields an estimate of the equity risk premium, which could be relatively constant over time. We note, for example, that the regression of allowed ROEs against Treasury yields over the last 40 years (refer to Exhibit 21) has a *y*-intercept of 8.3%. Incorporating a fixed equity risk premium in the calculation of allowed ROEs would, of course, increase the sensitivity of allowed ROEs to movements in underlying Treasury yields.

Exhibit 23 displays individual rate cases over the past two years as well as averages for 2003 and 2004.

Exhibit 23 Electric Utility Rate Cases, 2003-04

Electric Utility	State	Date	Allowed ROE
Entergy Gulf States, Inc.	LA	1/8/2003	11.10%
South Carolina Electric & Gas Co.	SC	1/31/2003	12.45
Madison Gas & Electric Co.	WI	2/28/2003	12.30
PacifiCorp	WY	3/6/2003	10.75
Rochester Gas & Electric	NY	3/7/2003	9.96
Wisconsin Public Service	WI	3/20/2003	12.00
Commonwealth Edison	IL	3/28/2003	11.72
Wisconsin Power and Light	WI	4/3/2003	12.00
Interstate Power & Light	IA	4/15/2003	11.15
Aquila	CO	6/12/2003	10.75
Public Service of Colorado	CO	6/26/2003	10.75
Public Service Electric & Gas Co.	NJ	7/31/2003	9.75
Rockland Electric Co.	NJ	7/31/2003	9.75
Jersey Central Power & Light Co.	NJ	8/1/2003	9.50
Pacific Power & Light Co.	OR	8/26/2003	10.50
Maine Public Service Co.	ME	9/3/2003	10.25
Connecticut Power & Light	CT	12/17/2003	9.85
PacifiCorp	UT	12/17/2003	10.70
Montana-Dakota Utilities	ND	12/18/2003	11.50
Wisconsin Power & Light	WI	12/19/2003	12.00
Wisconsin Public Service	WI	12/19/2003	12.00
Green Mountain Power	VT	12/22/2003	10.50
Madison Gas & Electric Co.	WI	1/13/2004	12.00
PacifiCorp	WY	3/2/2004	10.75
Nevada Power	NV	3/24/2004	10.25
Interstate Power & Light	MN	4/5/04	11.00
PSI Energy	IN	5/18/04	10.50
Idaho Power	ID	5/25/04	10.25
Sierra Pacific Power	NV	5/27/04	10.25
Kentucky Utilities	KY	6/30/04	10.50
Louisville Gas & Electric	KY	6/30/04	10.50
Aquila	CO	8/25/04	10.25
Avista	ID	9/9/04	10.40
Narragansett Electric	RI	11/19/04	10.50
Detroit Edison	MI	11/23/04	11.00
Interstate Power & Light	IA	12/14/04	11.75
Georgia Power	GA	12/21/04	11.25
Wisconsin Public Services	WI	12/21/04	11.50
PPL Electric Utilities	PA	12/22/04	10.70
Madison Gas & Electric	WI	12/22/04	11.50
Western Massachusetts Electric	MA	12/29/04	9.85
Average			10.88%
Average, 2003			10.97
Average, 2004			10.77

Source: RRA and Bernstein analysis.

A Case Study of Capital Structure Adjustments In Response to Changes In Allowed ROE

Given the overwhelming importance of allowed ROEs to the earnings and financial performance of regulated utilities, we performed a case study to determine how regulated utilities respond to changes in their allowed ROE. A cut in allowed ROE, all else being unchanged, would lead to a decline in net income. A countervailing influence, of course, is the tendency for utility rate base to grow; in the long run, however, rate base growth reflects the rate of growth of power demand, which currently averages about 2% per annum. A more powerful tool in the short term, therefore, may be for utilities to adjust their capital structure to offset the change in allowed ROE. To test the hypothesis that utilities may seek to offset cuts in allowed ROE by raising their ratio of equity to total capital, we conducted a case study of eight electric utilities confronted with reductions in their allowed ROEs.

The criteria that a utility had to meet to be included in our study were: (1) the utility's operations were entirely regulated on a cost-of-service basis; (2) the utility operated in only one state, so that the decisions of that state's regulators influenced the entirety of its operations; (3) the utility generated only electricity, or if it provided both gas and electric services, then the rates for both had to be set equally and simultaneously; and (4) the utility had at least four rate cases since 1990. The eight utilities that fit all of these criteria and were included in our study are Madison Gas and Electric, PSI Energy, Hawaiian Electric, Northern States Power, Wisconsin Power & Light, Wisconsin Public Service, Green Mountain Power and Puget Sound Energy.

We analyzed these companies on the basis of two relationships using scatter plots. First, we looked at the relationship between allowed ROEs and the equity-to-total capital ratio (we calculated the equity-to-total capital ratio from the companies' balance sheets as reported in their GAAP financial statements, and refer to it hereafter as the "balance sheet equity-to-capital ratio"). Second, we plotted the allowed ROE versus the maximum equity-to-total capital ratio permitted by the utility's regulators. This regulatory equity-to-total capital ratio is the maximum percentage of equity on which the stated return can be earned. While a company's balance sheet equity to total capital can diverge from the regulatory ratio, the utility will not earn a return on equity in excess of this ratio. Exhibits 24-39 display the two relationships for each company.

Three trends can be discerned by examining these two relationships across all eight companies. First, six of the eight companies studied show an inverse relationship between allowed ROE and the maximum ratio of equity to capital authorized by regulators. This suggests that regulators have tended to allow higher maximum equity-to-total capital ratios when ROEs are reduced.

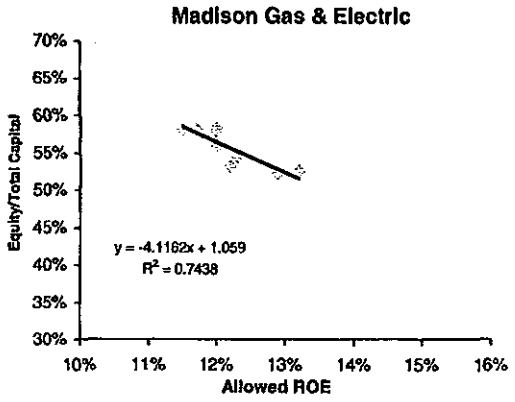
Second, seven of the eight companies exhibit an inverse relationship between authorized ROEs and the ratio of equity to total capital on their balance sheets. Three companies, Madison Gas and Electric, PSI Energy and Hawaiian Electric, exhibit particularly strong inverse relationships: for every percentage point decline in ROE at these three companies, the balance sheet equity-to-total capital ratio rises by one to four percentage points. This would imply that utilities seek to capitalize on the higher benchmark equity-to-capital ratios allowed by regulators by raising the ratio of equity to total capital on their balance sheets.

Third, balance sheet equity-to-total capital ratios move more than benchmark equity-to-total capital ratios for every percentage-point move in allowed ROEs. The greater response is witnessed at six of the eight companies studied. The fact that utilities adjust their balance sheet equity-to-

capital ratios more than anticipated by regulators in setting the benchmark ratio suggests a concerted effort to use this mechanism to their advantage. While regulated utilities cannot earn a return beyond their regulatory equity-to-capital ratio, utilities may have sought to raise their equity ratios in order to position themselves for their next rate case.

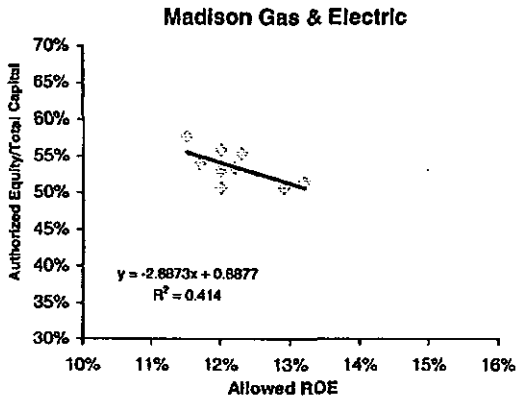
In summary, there is evidence to suggest that (i) when cutting allowed ROEs, regulators often allow increases in maximum permitted equity-to-capital ratios, and (ii) utilities adjust their capital structure in response to changes in allowed ROE. Such adjustments to regulatory and balance sheet equity-to-capital ratios would tend to stabilize utility earnings in the face of cuts in allowed ROEs.

Exhibit 24 Madison Gas & Electric: Allowed ROE vs. Equity-to-Total Capital



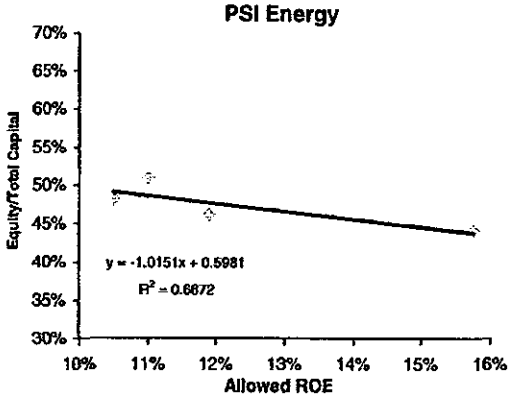
Source: FactSet, RRA and Bernstein analysis.

Exhibit 25 Madison Gas & Electric: Allowed ROE vs. Authorized Equity-to-Total Capital



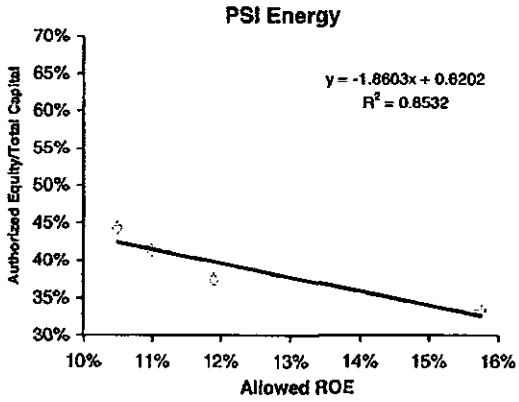
Source: FactSet, RRA and Bernstein analysis.

Exhibit 26 PSI Energy: Allowed ROE vs. Equity-to-Total Capital



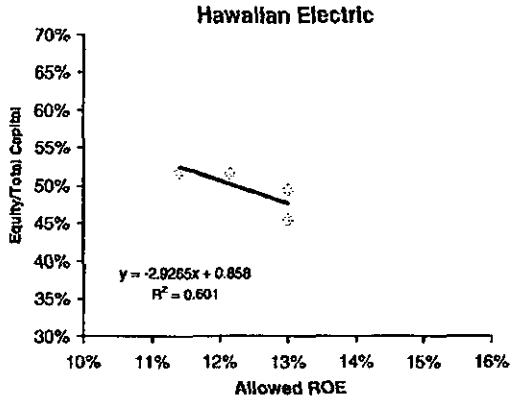
Source: FactSet, RRA and Bernstein analysis.

Exhibit 27 PSI Energy: Allowed ROE vs. Authorized Equity-to-Total Capital



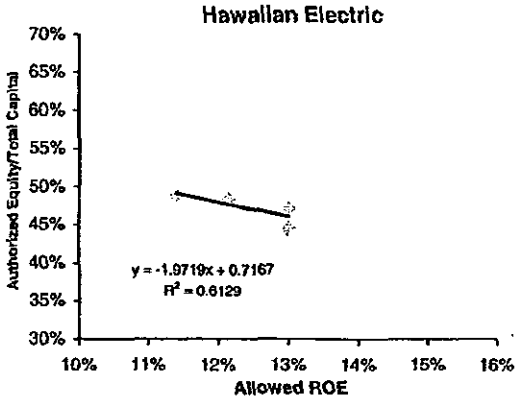
Source: FactSet, RRA and Bernstein analysis.

Exhibit 28 Hawaiian Electric: Allowed ROE vs. Equity-to-Total Capital



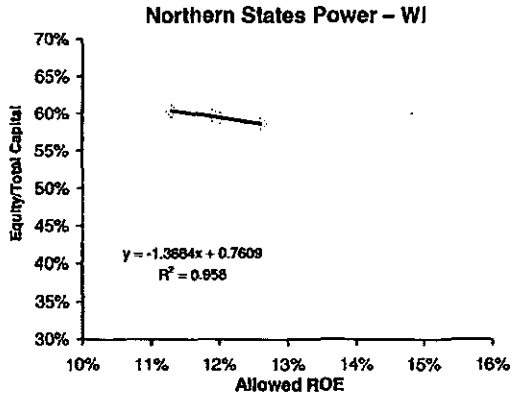
Source: FactSet, RRA and Bernstein analysis.

Exhibit 29 Hawaiian Electric: Allowed ROE vs. Authorized Equity-to-Total Capital



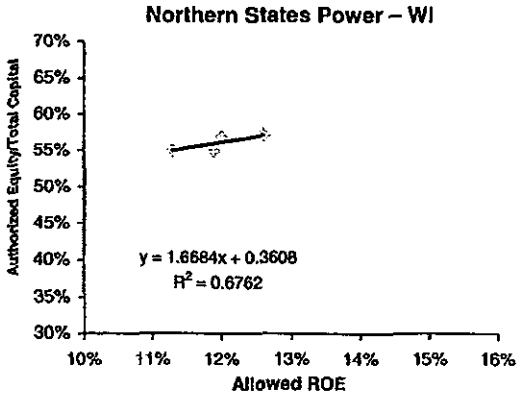
Source: FactSet, RRA and Bernstein analysis.

Exhibit 30 Northern States Power – WI: Allowed ROE vs. Equity-to-Total Capital



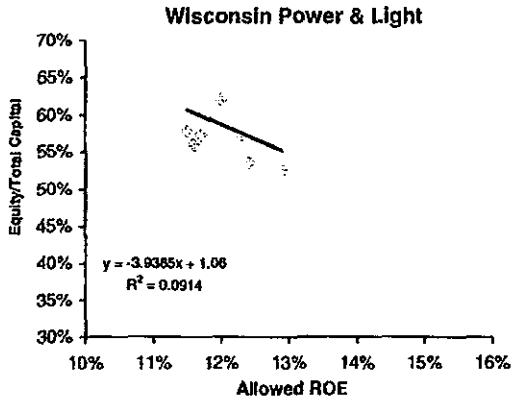
Source: FactSet, RRA and Bernstein analysis.

Exhibit 31 Northern States Power – WI: Allowed ROE vs. Authorized Equity-to-Total Capital



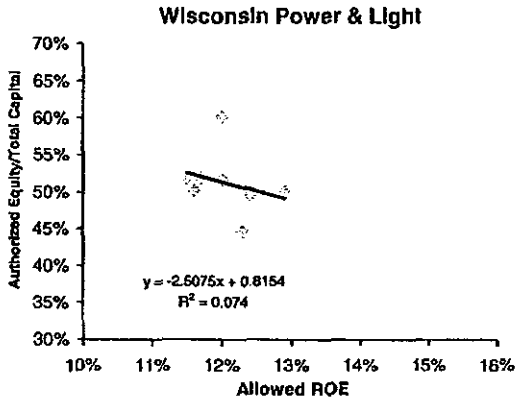
Source: FactSet, RRA and Bernstein analysis.

Exhibit 32 Wisconsin Power & Light: Allowed ROE vs. Equity-to-Total Capital



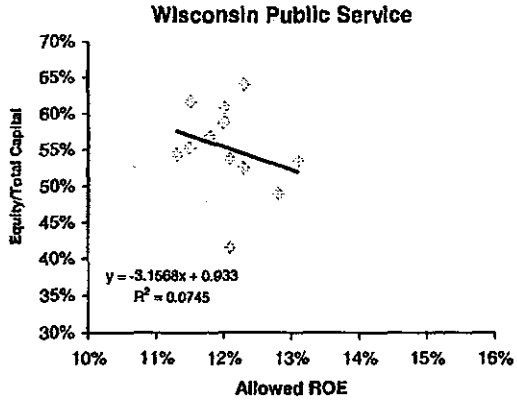
Source: FactSet, RRA and Bernstein analysis.

Exhibit 33 Wisconsin Power & Light: Allowed ROE vs. Authorized Equity-to-Total Capital



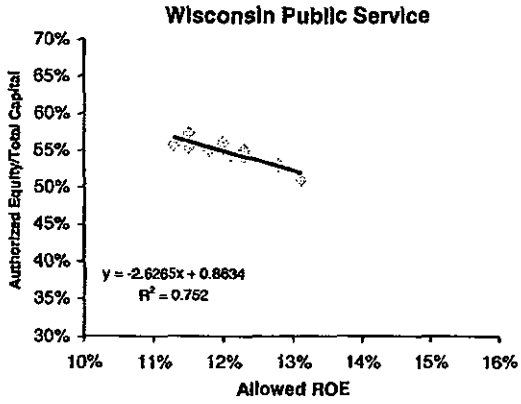
Source: FactSet, RRA and Bernstein analysis.

Exhibit 34 Wisconsin Public Service: Allowed ROE vs. Equity-to-Total Capital



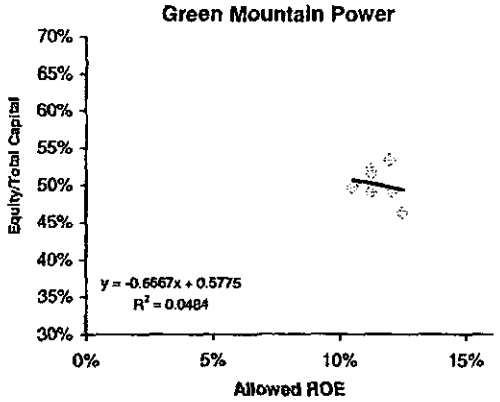
Source: FactSet, RRA and Bernstein analysis.

Exhibit 35 Wisconsin Public Service: Allowed ROE vs. Authorized Equity-to-Total Capital



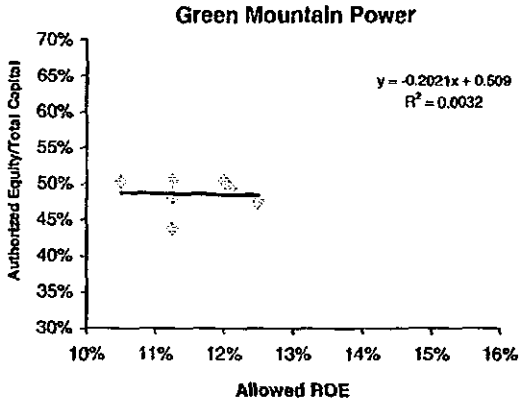
Source: FactSet, RRA and Bernstein analysis.

Exhibit 36 Green Mountain Power: Allowed ROE vs. Equity-to-Total Capital



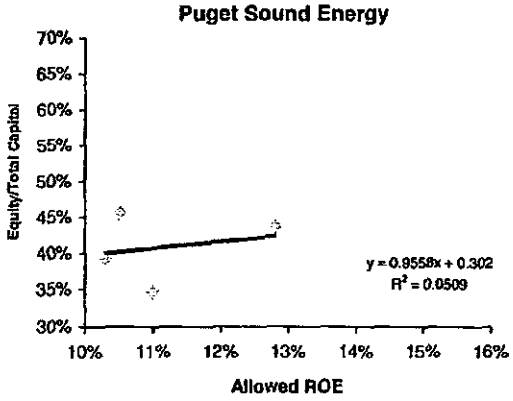
Source: FactSet, RRA and Bernstein analysis.

Exhibit 37 Green Mountain Power: Allowed ROE vs. Authorized Equity-to-Total Capital



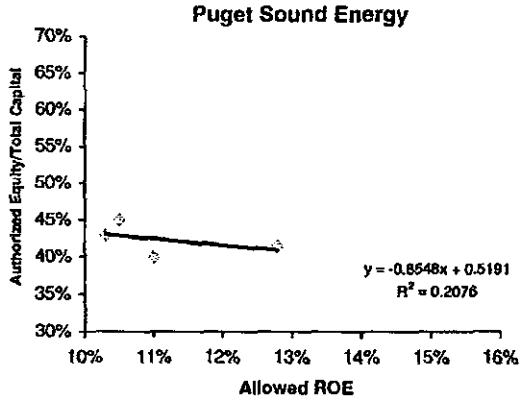
Source: FactSet, RRA and Bernstein analysis.

Exhibit 38 Puget Sound Energy: Allowed ROE vs. Equity-to-Total Capital



Source: FactSet, RRA and Bernstein analysis.

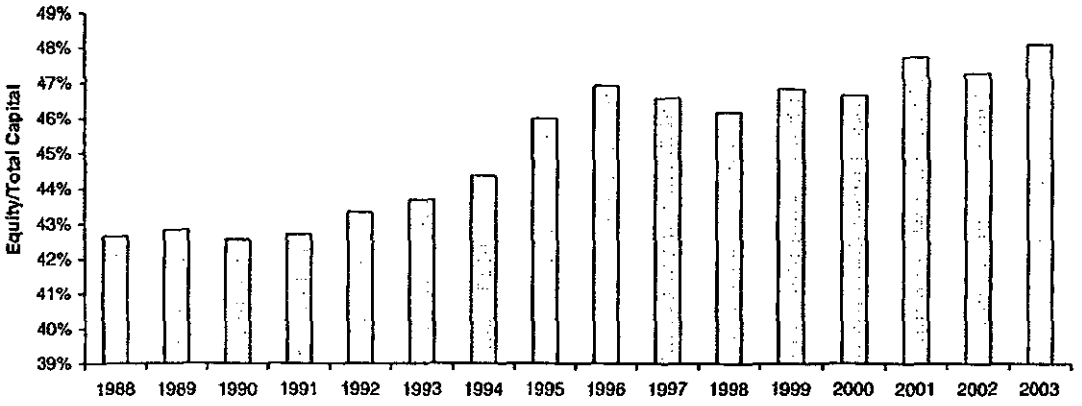
Exhibit 39 Puget Sound Energy: Allowed ROE vs. Authorized Equity-to-Total Capital



Source: FactSet, RRA and Bernstein analysis.

The pattern illustrated by our test companies is repeated when the utility industry is viewed in aggregate. The last 15 years have been a period of steadily declining long-term interest rates, accompanied by a similar, albeit more modest, decline in average allowed ROEs. As illustrated in Exhibit 40, this period has also witnessed a 5.5 pp increase in the average equity-to-capital ratio, from 42.5% to 48.0%.

Exhibit 40 Utility Operating Company Equity-to-Total Capital

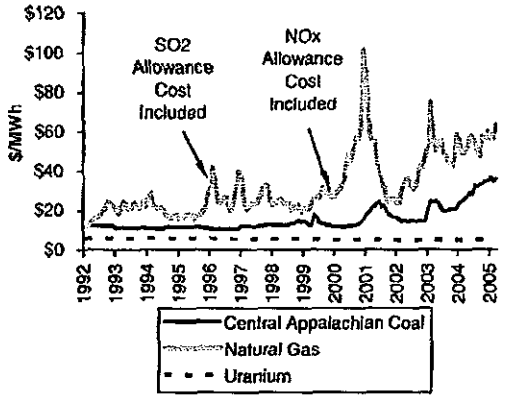


Source: Platts and Bernstein analysis.

The Outlook for Future ROEs and Earnings at Regulated Utilities

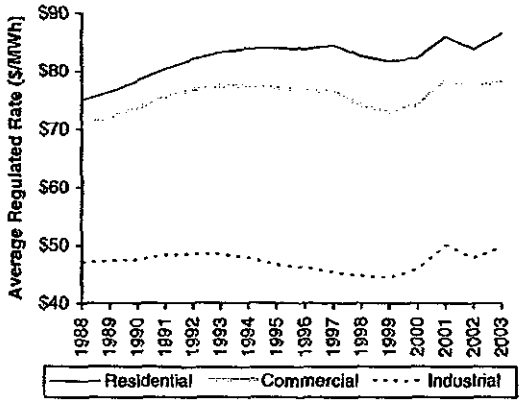
This analysis has broad implications for regulated utilities going forward. The regulatory environment for these companies is currently in a state of flux. Electricity rates at regulated utilities have come under upward pressure in recent years as utilities seek to pass on to customers the higher fuel costs incurred to generate electricity (see Exhibit 41). This trend is likely to persist in the years ahead as long-term coal contracts expire and are renewed at the higher market prices currently prevailing (see Exhibit 42). Second, the recently issued Clean Air Interstate Rule will significantly increase both the operating cost and capital expenditures of coal-fired power generators: we estimate that utilities in the 28 eastern states covered by CAIR will incur $3.6 billion in incremental operating costs and $24 billion dollars in capital expenditures in order to achieve the emissions reductions required by 2010. Finally, the consensus expectation is for long-term interest rates, as measured by the yield on the 10-year U.S. Treasury bond, to rise by 75-100 basis points over the next year. Whereas in the past decade utilities faced with rising operating costs may have been deterred from seeking rate increases by the low-interest-rate environment, the consensus view that rates are now headed upwards, combined with sharply rising fuel and environmental compliance costs, makes it likely that utility rate cases will be more frequent in the years ahead.

Exhibit 41 Fuel Costs ($/MWh)



Source: Platts, Bloomberg L.P. and Bernstein analysis.

Exhibit 42 Average Regulated Rates ($/MWh)



Source: Platts and Bernstein analysis.

Our analysis suggests that utility ROEs and earnings may come under less pressure in these upcoming rate cases than is suggested by the decline in Treasury yields over the last two decades. We have found that, historically, 100 bp movements in the yield of the 10-year U.S. Treasury are associated with only 56 bp movements in allowed ROEs. The greater stability of allowed ROEs relative to underlying changes in U.S. Treasury yields likely reflects the efforts of regulators to limit volatility in electricity rates while offering stable long-run returns on utility capital. Further limiting the impact of rate movements on utility earnings is the tendency of changes in allowed ROEs to be offset, at least in part, by inverse movements in the maximum equity-to-capital ratios permitted by regulators. Based on a limited case study of eight utilities' experience since 1990, it seems that utility managements have sought to capitalize on this tendency by raising balance sheet equity-to-capital ratios to offset reductions in allowed ROE.

Implications of Slow EPS Growth for Utility Valuation

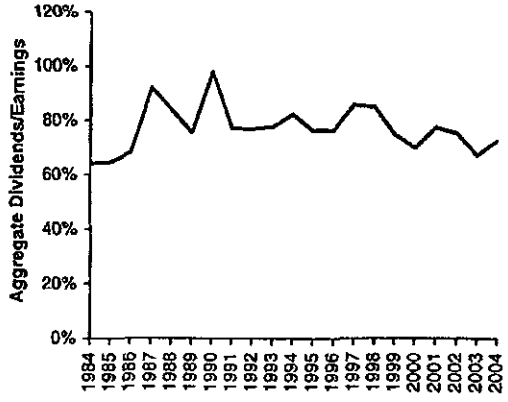
Valuation of Utility Stocks

In light of our analysis of the historical and anticipated growth of earnings per share at regulated utilities, what can be concluded regarding an appropriate P/E multiple for these stocks? As previously noted, the price-to-earnings ratio can be expressed as a function of the dividend payout ratio, the rate of growth in EPS and the discount rate applied by investors to the stream of future dividends:

P/E = dividend payout ratio/(discount rate – EPS growth rate)

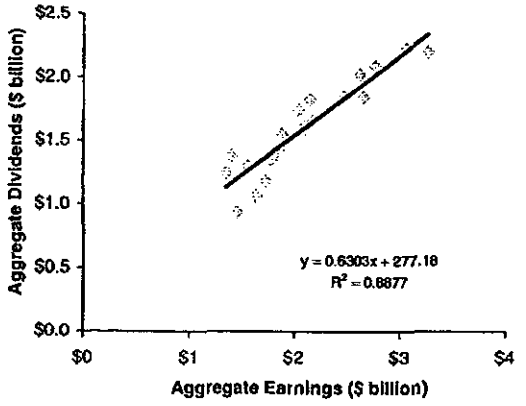
The rate of EPS growth for our sample companies was 1.1% per year over the last two decades and is unlikely, according to our analysis, to exceed the rate of growth in rate base in the future. As rate base correlates closely with growth in power demand, growth in EPS would seem bounded on the upside by the long-run growth in power demand, which NERC estimates to be about 2.0% annually. Finally, the dividend payout ratio of our sample of regulated utilities has been relatively stable over time, as can be seen in Exhibits 43 and 44, and over the last five years has ranged from 67% to 77% of earnings. Inserting this range of values for earnings growth and dividend payout into the equation above allows us to solve for the expected rate of return on regulated utility stocks at different P/E multiples. Alternatively, we can select a desired rate of return and calculate the maximum P/E multiple that an investor should be prepared to pay.

Exhibit 43 Ratio of Aggregate Dividends to Aggregate Earnings of Sample Group (Payout Ratio)



Source: FactSet and Bernstein analysis.

Exhibit 44 Relationship Between Aggregate Dividends and Aggregate Earnings for Sample Group



Source: FactSet and Bernstein analysis.

Implication of Slow EPS Growth

Our analysis indicates that regulated electric utilities, which currently trade at an average P/E multiple of some 16 times forward earnings, are capitalizing future dividends at relatively low discount rates — or, put another way, offer investors relatively low long-run returns. Thus, assuming a dividend payout ratio of 75% (at the upper end of the recent range) and long-run growth rates of 1.0-2.0% per annum, a P/E multiple of 16x is consistent with expected returns of 5.7-6.7% (see Exhibit 45). At a dividend payout ratio of 70%, to pay a 16x multiple for a regulated utility growing at 1-2% per year implies the expectation of future returns of 5.4-6.4% (see Exhibit 46) — while at a payout ratio of 65%, expected returns would fall to the range of 5.1-6.1% (see Exhibit 47).

Exhibit 45 Return Assuming 75% Payout Ratio

	P/E Multiple		
Growth	14x	15x	16x
1%	6.4%	6.0%	5.7%
2%	7.4	7.0	6.7
3%	8.4	8.0	7.7

Source: FactSet and Bernstein analysis.

Exhibit 46 Return Assuming 70% Payout Ratio

	P/E Multiple		
Growth	14x	15x	16x
1%	6.0%	5.7%	5.4%
2%	7.0	6.7	6.4
3%	8.0	7.7	7.4

Source: FactSet and Bernstein analysis.

Exhibit 47 Return Assuming 65% Payout Ratio

	P/E Multiple		
Growth	14x	15x	16x
1%	5.6%	5.3%	5.1%
2%	6.6	6.3	6.1
3%	7.6	7.3	7.1

Source: FactSet and Bernstein analysis.

Investors seeking higher returns must find stocks valued significantly below or growing significantly above the industry average. Thus, utilities projected to grow 2% per year while sustaining a dividend payout ratio of 70% will realize returns in excess of 7% only if their earnings multiples are 14x or below. Alternatively, utilities valued at 16 times earnings must realize long-term earnings growth of 3% or more, while maintaining dividend payout ratios of 65% or higher, to offer equity investors returns in excess of 7%.

The next three exhibits are configured to allow the reader to select a target return and, based on the given assumptions as to dividend payout and growth, to determine the maximum P/E multiple that should be paid for a regulated utility stock. Thus, investors targeting a 7.0-8.0% return should be prepared to pay between 10.7 and 12.5 times earnings for a regulated utility that offers 1-2% annual EPS growth while maintaining a sustainable dividend payout ratio of 75% (see Exhibit 48). For utilities paying out only 70% of earnings on an ongoing basis, the P/E multiples corresponding to a 7.0-8.0% target return range from 10.0x to 11.7x (see Exhibit 49), while for utilities paying out only 65% of earnings, the corresponding range of P/E multiples is only 9.3-10.8x (see Exhibit 50). Alternatively, investors may seek out stocks whose earnings growth is more rapid than the industry average and whose capitalization and cash generation is such that the risk of equity dilution is minimal. Utilities capable of growing EPS at 3% per year, for example, while sustaining a dividend payout ratio of 65% or higher can realize 7.0-8.0% returns for their shareholders at P/E multiples of 13.0-16.3x. A regulated utility that combines rapid growth prospects with sound capitalization is Edison International (rated outperform, target price $44).

Exhibit 48 P/E Multiple Assuming 75% Payout Ratio

	Discount Rate		
Growth	6.0%	7.0%	8.0%
1%	15.0x	12.5x	10.7x
2%	18.8	15.0	12.5
3%	25.0	18.8	15.0

Source: FactSet and Bernstein analysis.

Exhibit 49 P/E Multiple Assuming 70% Payout Ratio

	Discount Rate		
Growth	6.0%	7.0%	8.0%
1%	14.0x	11.7x	10.0x
2%	17.5	14.0	11.7
3%	23.3	17.5	14.0

Source: FactSet and Bernstein analysis.

Exhibit 50 P/E Multiple Assuming 65% Payout Ratio

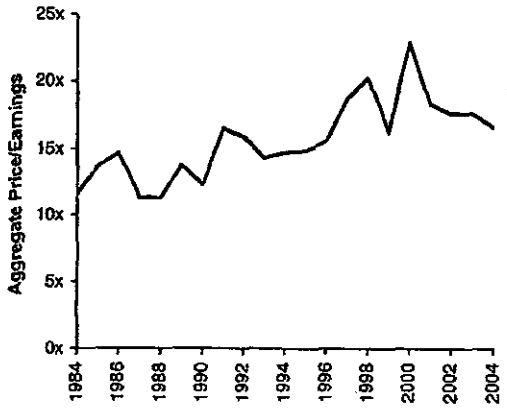
	Discount Rate		
Growth	6.0%	7.0%	8.0%
1%	13.0x	10.8x	9.3x
2%	16.3	13.0	10.8
3%	21.7	16.3	13.0

Source: FactSet and Bernstein analysis.

Utility Valuations and Interest Rates

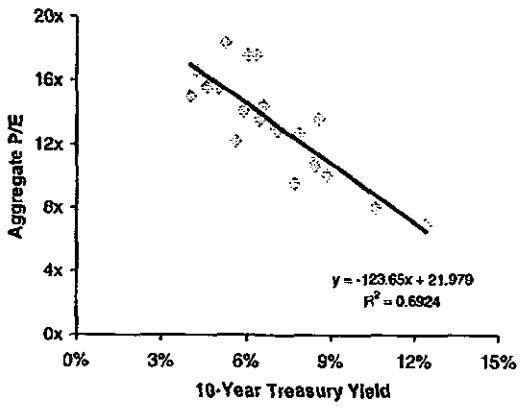
Investors' apparent willingness to accept relatively low expected rates of return on regulated utility stocks is consistent with the historically strong relationship between Treasury yields on the one hand and the price-to-earnings and price-to-dividend ratios of utility stocks on the other. The historical trend in the P/E ratios of our sample utilities and the correlation of P/E ratios with 10-year Treasury yields are presented in Exhibits 51 and 52, while the historical trend in the ratio of price to dividends and the correlation of this ratio with Treasury yields are presented in Exhibits 53 and 54. As can be seen there, movements in the 10-year Treasury bond yield explain 69% of the variation in the average P/E ratio of regulated utility stocks over the last 20 years, and 77% of the variation in the average dividend yield of the group. The high level of utility stock prices relative to current earnings and dividends, in other words, is likely best explained by the historically low level of interest rates and the correspondingly modest return expectations of investors.

Exhibit 51 History of Aggregate P/E for Sample Group, 1984-2004



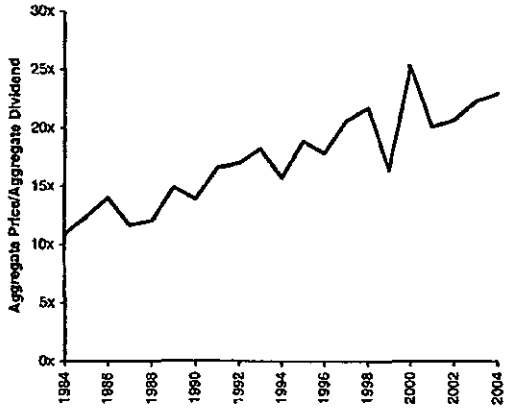
Source: FactSet and Bernstein analysis.

Exhibit 52 Relationship of Aggregate P/E vs. 10-Year Treasury Yields for Regulated Utilities, 1984-2004



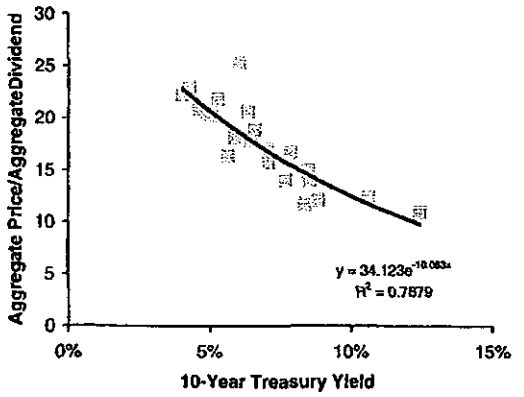
Source: FactSet and Bernstein analysis.

Exhibit 53 Aggregate Price-to-Aggregate Dividend for Regulated Utilities, 1984-2004



Source: FactSet and Bernstein analysis.

Exhibit 54 Relationship Between Aggregate Price to Dividend vs. 10-Year Treasury Yield for Regulated Utilities, 1984-2004



Source: FactSet and Bernstein analysis.

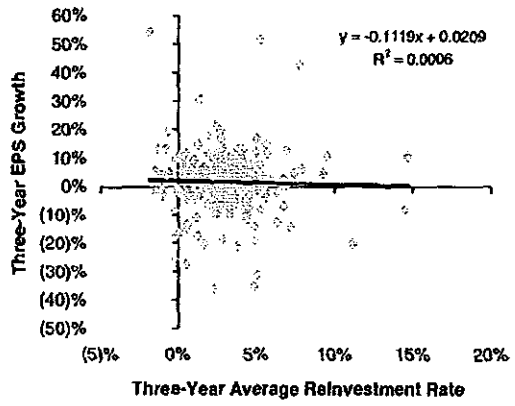
Should Utility Investors Pay for Growth?

Investor expectations that regulated utilities will realize higher rates of earnings growth than the 1.0-2.0% indicated by our research would, of course, justify higher P/E ratios than those calculated in Exhibits 45-47, above. In aggregate, we deem it unlikely that the growth of regulated utilities' rate base should accelerate in the future; rather, the energy intensity of U.S. GDP (energy consumed per dollar of GDP) has tended to fall over time, with the result that the rate of growth in electricity demand has tended to lag further behind that of GDP. The historically low level of interest rates currently prevailing, moreover, introduces the risk that allowed ROEs will be reduced in future rate cases, eroding the earnings power of historical investments in rate base. At the level of individual utilities, however, company-specific opportunities for earnings growth (such as faster-than-average population growth in a utility's service territory) in theory should be rewarded with higher P/Es.

Given the tendency of regulated utility earnings to grow with rate base, we examined the historical relationship between high rates of reinvestment by regulated utilities and subsequent earnings growth. If these variables were to show a strong positive correlation, higher P/E multiples than those estimated above might be appropriate for companies with high rates of retained earnings. To test this relationship, we calculated the reinvestment rate (net income minus dividends divided by book value of equity at the beginning of the year) for each of the 13 regulated utilities in our sample for each year from 1984 to 2004. We then calculated three- and five-year rolling averages of each utility's reinvestment rate and compared these with that utility's compound average rate of growth in earnings per share for the corresponding period. Exhibit 55 presents the results of a correlation analysis between these two variables over rolling three-year periods, while Exhibit 56 presents the correlation over rolling five-year periods. Surprisingly, high rates of reinvestment show a very modest correlation with EPS growth (R-squared = 0% over three years; R-squared = 4% over five years). Among our sample group of regulated utilities, in other words, the rate of reinvestment has not been a reliable predictor of medium-term EPS growth.

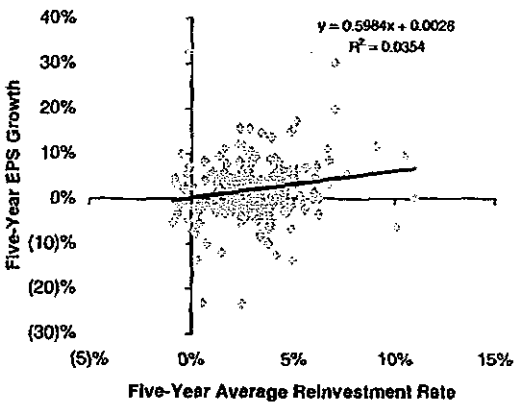
While we can speculate as to the reasons for this (e.g., disallowance of capital expenditures by regulators or unsuccessful attempts at diversification into unregulated businesses), these results imply that investors should be cautious when paying premium P/E multiples for companies with high rates of reinvestment.

Exhibit 55 Three-Year Average Reinvestment Rate vs. Three-Year EPS Growth Rate



Source: FactSet and Bernstein analysis.

Exhibit 56 Five-Year Average Reinvestment Rate vs. Five-Year EPS Growth Rate



Source: FactSet and Bernstein analysis.

Conclusion

Our analysis indicates that regulated electric utilities, which currently trade at an average P/E multiple of some 16 times forward earnings, offer investors relatively low long-run returns. Thus, assuming a dividend payout ratio of 70% and long-run growth rates of 1.0-2.0%, a P/E multiple of 16x is consistent with expected returns of 5.4-6.4%. Our analysis also finds that high rates of reinvestment by regulated utilities historically have shown only a very modest correlation with EPS growth. Investors seeking returns in excess of 7% on their regulated utility investments are therefore urged to focus on stocks combining low P/E multiples (14-15x) and high sustainable dividend payout ratios (70-75%).

Conclusions

Over the past 20 years, our sample of 13 regulated utilities experienced a compound annual growth rate in aggregate earnings of 3.8%. In exploring the drivers of earnings growth, we found that the aggregate earnings of our sample group could be predicted as a linear function of total invested capital with an R-squared of 90%. In turn, the best predictor of invested capital appears to be demand growth; a correlation analysis of MWh sold with total invested capital also produces an R-squared of 90%.

Over the same period, however, the compound annual growth in earnings per share for our sample group was only 1.1%. Our analysis suggests two possible explanations for why EPS growth has fallen so far behind aggregate earnings growth over the last 20 years. First, we find a very strong correlation historically between share count and invested capital, possibly reflecting the high dividend payout of regulated utilities and, thus, the limited retained earnings available to fund capital investment. The second contributor to the increase in share count among our sample utilities has been their tendency to reduce leverage over the last 20 years. In 1984, our 13 sample utilities had an aggregate ratio of equity to total capital of 32%; by 2004, they had raised equity to 38% of total capital. Thus, while strong growth in invested capital drove a roughly commensurate increase in aggregate earnings over the last 20 years, the benefit to EPS was largely diluted away through repeated issues of stock.

If demand growth, forecast at 2% per annum, continues to drive the expansion of invested capital and thus growth in regulated earnings, regulated utilities, in the absence of further equity dilution, can be expected to grow EPS at 2% annually. Given the industry average dividend payout ratio of 70% and P/E multiple of 16x, expected returns are thus in the area of 6.4%. Investors' apparent willingness to accept relatively low expected rates of return on regulated utility stocks is consistent with the historically strong relationship between Treasury yields on the one hand and the price-to-earnings and price-to-dividend ratios of utility stocks on the other. The high level of utility stock prices relative to current earnings and dividends, in other words, is best explained by the low returns available on alternative investments of comparable duration and risk.

Investors seeking higher returns must find stocks valued significantly below or growing significantly above the industry average. Thus, regulated utilities projected to grow 2% per year while sustaining a dividend payout ratio of 70% will realize returns in excess of 7% only if their earnings multiples are 14x or below. Alternatively, utilities valued at 16 times earnings must realize long-term earnings growth of 3% or more, while maintaining dividend payout ratios of 65% or higher, to offer equity investors returns in excess of 7%. We note, however, that among our sample group of regulated utilities, the rate of reinvestment has not been a reliable predictor of medium-term EPS growth. Investors should be cautious, therefore, when paying premium P/E multiples for companies with high rates of reinvestment.

Disclosure Appendix

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  Market-Perform: Stock will perform in line with the market index to within +/-15 pp in the year ahead.

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- As of 7/29/05, our ratings were distributed as follows: Outperform/Buy – 45.2%; Market-Perform/Hold – 49.8%; Underperform/Sell – 5.0%.
- Mr. Wynne maintains long positions in TXU Corp. (TXU) and Duke Energy Corp. (DUK). A member of Hugh Wynne's household maintains long positions in Scottish Power (SPI) and Scottish & Southern Energy.
- The following companies are or during the past twelve (12) months were clients of Bernstein, which provided non-investment banking-securities related services and received compensation for such services EIX / Edison International.
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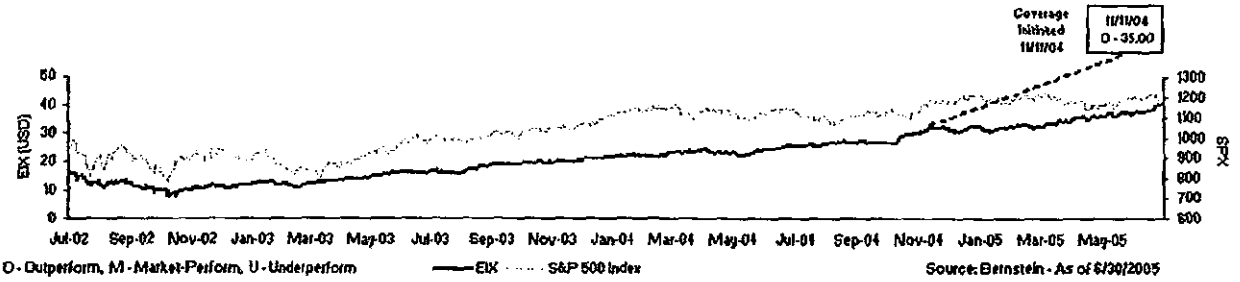

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From: Dave Murray [davidmdmurray@embarqmail.com]
Sent: Monday, February 22, 2010 10:17 PM
To: Murray, David
Subject: Fw: Kaplan Schweser - Faculty Email Utility

From: Premium Solution Questions 3
Sent: Friday, February 19, 2010 12:05 PM
To: davidmdmurray@embarqmail.com
Subject: RE: Kaplan Schweser - Faculty Email Utility

Dear David,

I don't see a discrepancy in the curriculum because it is saying to use the arithmetic mean to project 1 period into the future but use the geometric mean if you are projected multiple periods or years into the future which is reasonable since if you used the arithmetic mean you would be introducing an upward bias which the geometric mean corrects for this.

Regards,

Kurt Schuldes, CFA

From: davidmdmurray@embarqmail.com [mailto:davidmdmurray@embarqmail.com]
Sent: Thursday, February 18, 2010 8:04 PM
To: Premium Solution Questions 3
Subject: Kaplan Schweser - Faculty Email Utility
Importance: High

Message Information

Name:	David Murray
Email:	davidmdmurray@embarqmail.com
Session/Products:	Economics
Message:	I am attending your 16-week online class and have a question about the information presented on slide 18 for SS 6. I thought the quantitative material in the Level I curriculum advocated using arithmetic means for estimating the risk premium based on historical return information, but I also remember seeing information in Level II and probably in Level I as well that advocated using geometric means for determining the risk premium. Is this a contradiction in the curriculum? I am wondering if this is looked at differently from a statistical perspective versus a practical investment perspective. Thank you for any light you can shed on this.